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FRACTURES OF THE NECK OF THE FEMUR.

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HISTORY OF TREATMENT OVER THE LAST CENTURY.

IN reviewing the literature on fractures of the neck of the femur, we find three distinct phases in the treatment: (i) a negative phase, (ii) an abduction phase, (iii) an operative phase—(*a*) nailing, (*b*) subtrochanteric osteotomy.

The Negative Phase.

In 1823 Sir Astley Cooper wrote as follows: "Since it is impossible even for a few hours to preserve exact apposition of the fragments, the surgeon should not be held responsible for a result over which he had no control." Cooper's pronouncement established the "negative standard", which determined the character of the teaching and practice for more than 100 years.

In 1847 a Victorian authority, R. W. Smith, made the following statement: "In many instances the injury soon proves fatal and no matter whether the fracture has taken place within or external to the capsule, whether it has united by ligament or bone, shortening of the limb and lameness are the inevitable results."

In 1903, from a survey of the treatment as conducted in three of the leading hospitals in New York, Bissell concluded that "if the patient escapes with his life he must be contented with loss of function, loss of symmetry, even if he is not permanently crippled".

In 1907 Wilson reported the final results in 18 cases in which treatment was given in a Philadelphia hospital: six patients never attempted to walk, eight used two crutches in locomotion, two used two sticks, one used one stick, and one wore a high shoe but walked without support.

In 1910 Stimson in his treatise on fractures wrote as follows: "As regards fractures of the neck of the femur the first indication is to save life and the ideal object of treatment, that of restoration of form and function, is rarely to be attempted or even sought."

As late as 1923 we read the following advice in "Pye's Surgical Handicraft": "The patient with a fracture of the neck of the femur should be propped up in bed with the limb between sandbags. After about a month the patient should be encouraged to use the limb as much as possible since union is not aimed at."

The Abduction Phase.

The inception of the radical reform dates from 1890, when Royal Whitman reported a case of a fracture of the neck of the femur in a young child. Thus for the first time efficient treatment of the fracture as a fracture was clearly presented, since in this case there could be no question of (*a*) danger to the patient or (*b*) the capacity of the tissues for repair. The immediate indication was the correction of the deformity. Whitman achieved this by extending the injured limb, abducting it and internally rotating it. The limb was then encased in a plaster spica. The security was assured by (i) bony contact of the fragments, (ii) tightening of the capsule and (iii) contact of the greater trochanter with the side wall of the pelvis.

The abduction theory, having been tried in children, was next applied to adults. The question at issue was whether efficient treatment of the fracture was more dangerous than life-saving neglect. Investigation continued throughout the next twenty years. The conclusion was that even in aged subjects it had been demonstrated that efficient treatment of the fracture by the abduction method was actually more conservative than life-saving neglect, since it relieved pain and permitted frequent changes of posture, preventing congestion and bed-sores; shortening of the limb and lameness were found not to be inevitable.

Whitman's wards in the Hospital for the Ruptured and Crippled, New York, were filled with elderly patients

immobilized by skilfully applied and beautifully polished plaster spicas, and the Whitman plaster became a surgical byword.

The principles established by Whitman laid the foundation of the modern developments which have solved the problem of the ununited fracture.

Whitman held that 40% to 50% of fractures united. This was a great advance from the old negative phase; but there are serious disadvantages in his method. (i) The knee-joint is immobilized for many months, hence intractable stiffness of the knee often develops. (ii) The blood supply of the head of the femur may be impaired by the fracture so that union is not complete before twelve months or so. It is difficult to keep an elderly patient in a plaster spica for twelve months. (iii) It is difficult to mould a plaster spica to prevent rotation movements of the pelvis and hence of the head of the femur. Moreover, muscle retraction causes shearing strains which give rise to decalcification, and if the fracture unites it is at the cost of shortening of the femoral neck and of limitation of the hip movements.

Results of the Whitman Abduction Method.

In September, 1923, Sven Johansson wrote as follows: "If we examine the literature and from it endeavour to form an idea of the results of the Whitman method we are confronted with great difficulties; it is astonishing to see how few are the useful statistics available."

Whitman himself has never published any collective statistics of his cases.

In 1923 Uno Lindgren treated 31 fractures of the neck of the femur by Whitman's methods; the results were recorded as 52% good, 32% bad and 16% primary mortality. Johan Woldenstrom treated 22 patients by Whitman's technique. The primary mortality was 2%. Fifteen of the 22 patients were followed up; six had osseous union and good function, two had osseous union and poor function, three had pseudarthrosis and good function and four had pseudarthrosis and bad function.

In 1928 the American Orthopædic Association appointed Osgood, Campbell and Orr to study the end results in 201 cases. The primary mortality was 28%, and union had occurred in 30% twelve months after injury. The best statistics from one hospital were those of Lofberg (1927). One hundred and sixty-eight patients were followed over a period. The primary mortality was 6%; of the survivors, 54% had good results, 18% fair and 25% bad; the results were unknown in 3% of cases. A good result was one with the following features: (i) osseous union, (ii) ability to walk without a stick and (iii) no subjective symptoms. Nothing was said concerning the mobility of the hip or knee.

The Operative Phase.

Nailing.

In 1897 Nicolaysen first described the method of nailing or spiking the fracture.

In 1921 nailing of the fracture was revived by Delbet, who substituted the screw for the spike. He reported on 35 cases. In four of these osseous union occurred—a result which in his experience had never before been attained. The largest statistics of cases of fresh fracture in which this operation was used are those reported from Delbet's clinic by Leveufit and Girade. The operation was carried out with metal screws. The conclusion was that in patients aged under fifty years osseous union and good results were obtained, but in patients aged over sixty years pseudarthrosis was obtained in 50% of the cases.

In 1931 Smith-Petersen introduced the open operation. By this means he exposed the greater trochanter, the neck of the femur and the fracture site and introduced a nail under direct vision. The novelty of his method was not the approach, because this had been used by many before him, but the shape of the nail, which was of stainless steel and had three metal lamellæ on a common shaft. With this nail there was less damage to the bone substance in its introduction, and less chance of the nail's twisting. He considered exposure of the fracture site absolutely necessary. In 1931 Smith-Petersen, Cave and Vangorder reported the results of 20 cases; the mortality rate was 10%, bony union occurred in 75% and non-union occurred in 15%.

The disadvantages of the open operation are as follows: (i) division and retraction of the joint capsule, which are necessary to expose the fracture, and which reduce or cut off the blood supply of the head of the femur, so that avascular necrosis of the head occurs in a high proportion of cases; (ii) a pronounced degree of shock; (iii) a high mortality.

In 1932 Sven Johansson saw the disadvantages of the Smith-Petersen open operation, and this determined him to turn the advantage of the Smith-Petersen nail to account without exposing the fracture—that is, to work out a method of extraarticular osteosynthesis, as only by this method would the operation be relatively slight. The method evolved by him consisted of the introduction of a strong metal wire up the neck of the femur from below the greater trochanter after the reposition of the fragments by the Whitman technique. The position of the wire was controlled in both antero-posterior and lateral planes by X-ray films. A Smith-Petersen pin furnished with a central canal was then introduced along the wire, the latter afterwards being removed. Johansson then reviewed nine cases, and his summary reads as follows:

> I would not at all assert that from these cases the conclusion may be drawn that extra-articular osteosynthesis with the Smith-Petersen nail and with the technique I have described should be the normal method of treatment for fractures of the neck of the femur. The period of observation is as yet too short and the number of cases treated too small.
>
> One may safely assert that no method is or can be capable of leading to 100% of completely satisfactory results in which a high percentage of the patients are very old and delicate.
>
> These cases have, however, been so encouraging to me that I have not hesitated to already describe the method now for other orthopædists to try it.

Subtrochanteric Osteotomy.

In 1941 A. L. Dawkins made a plea for the performance of subtrochanteric osteotomy in cases of fracture of the neck of the femur. In his opinion it gives the most generally satisfactory result in the hands of most surgeons. It provides a stable, painless joint with a useful range of movement. For many years a subtrochanteric osteotomy had been considered the correct treatment for (i) ununited fractures of the neck of the femur and (ii) osteoarthritis of the hip. If it is performed for a fresh fracture the chances of union are increased, because the tendency is for the upper fragment of the shaft to rotate and with it the head; this alters the line of the fracture from the vertical to the horizontal.

The operation, if union occurs, produces a result very little short of perfection, and if union does not occur the patient is assured of a satisfactory hip upon which he can walk. The disadvantage of this method is the post-operative treatment in plaster.

Thomas King considers that the correct treatment for intracapsular fractures is the performance of an osteotomy and the insertion of a Smith-Petersen pin and plate. His reasons for this are as follows: (i) in 25% of cases, after the insertion of a Smith-Petersen pin, the fracture fails to unite; (ii) of the 75% of patients whose fractures unite, a certain proportion develop osteoarthritis of the hip. Osteotomy is the correct treatment of patients in the latter group, and King hopes to achieve a larger percentage of unions by altering the line of the fracture from the vertical to the horizontal by rotating the upper fragment. By this method the disadvantage of the period of recumbency in plaster is avoided.

Clinical Features.

Fracture of the neck of the femur is an injury usually occurring in patients over the age of fifty years, although young people can suffer this injury, the youngest in this series being a woman aged twenty-seven years. It is more common in females than in males, the ratio being 4:1.

The predisposing causes are softening of the bone in old age, or lessened muscular protection in locomotion.

The exciting cause is usually a trivial injury—for example, tripping on the carpet or slipping in the street.

Signs and Symptoms of the Fracture.

Usually the following signs and symptoms are present: (i) pain over the fracture site, (ii) inability to walk, (iii) shortening of the limb and (iv) a variable amount of external rotational deformity.

Diagnosis.

The diagnosis can be made on the finding of external rotation alone, and every elderly person who has had a slight injury and has external rotational deformity of the limb should be considered to have a fractured neck of the femur until an X-ray examination has proved otherwise.

In a minority of cases the patient may be able to move the hip and even to walk despite bony injury. In these cases there is no shortening and only a trace of external rotation. These cases are easily missed; the following two are examples:

Mrs. M., aged twenty years, was in a private hospital for some days after a fall. She was never radiologically examined and was allowed to go home. Later X-ray examination revealed an abduction fracture.

Mrs. W., aged twenty-two years, was examined by one of the resident medical officers in the out-patient department, radiologically examined and allowed to go home. When examined by me next day this patient gave a history of a fall, and had pain over the upper end of the femur, full hip movements, no shortening and no external rotation. The X-ray film showed an impacted abduction fracture which was difficult to recognize.

Classification of Types.

Fractures of the neck of the femur may be classified into the following types: (i) intracapsular—(*a*) subcapital, (*b*) transcervical; (ii) extracapsular—(*a*) intertrochanteric, (*b*) pertrochanteric. A second division is of great importance with regard to treatment and progress: (*a*) abduction fractures are always subcapital; (*b*) adduction fractures occur at any level.

Abduction fractures always occur at the subcapital level. The femoral neck and shaft are slightly abducted in relation to the head. The fragments are impacted on the outer side. The plane of the fracture line is almost horizontal.

In these fractures Pauwel's angle—that is, the angle between the line of the fracture and the horizontal line taken through both anterior superior iliac spines—is between 0° and 30°. Clinically the limb can be moved freely and almost painlessly, and the patient may continue to walk.

The effect of weight-bearing and muscle contraction is to impact the fragments together. The axis of movement is not across the fracture line causing shearing, but through the fracture causing impaction. This fracture will unite whether it is treated or not, and it is unnecessary to immobilize the limb in splints or plaster or to use any form of internal fixation.

Treatment of these fractures is by the following: (i) bed rest; (ii) active ankle, knee and hip movements; (iii) walking with crutches; (iv) no weight-bearing until X-ray examination reveals no evidence of avascular necrosis during the second and third months.

Of fractures of the femoral neck, 90% are adduction fractures. The fracture may occur at any level; it may be (*a*) subcapital, (*b*) transcervical, (*c*) intertrochanteric. The shaft and neck of the femur are adducted in relation to the head. Radiographs show the fracture lying in a relatively vertical plane through the femoral neck. Pauwel's angle varies from 30° to 90°. Both weight-bearing and contraction of the hip muscles shear the fragments on each other. The line of movement of the fragments is across the fracture surfaces.

The fragments rub on one another, there is hyperæmic decalcification and the bone is worn away. The whole femoral neck may disappear. These fractures never unite spontaneously and seldom unite in a plaster spica, and require fixation by a nail.

Treatment of Adduction Fractures.

Adduction fractures are treated as follows. The patient is put to bed with eight to ten pounds' weight extension, the weight being suspended over the post of the bed. This relieves pain and muscle spasm and facilitates the nursing of the patient.

The patient is treated thus for approximately one week; during that time the position with regard to actual surgical treatment is summed up. In the making of a decision about operation the following points are considered. (i) Cardiac failure is treated, and if after ten to fourteen days it is not controlled, operation is contraindicated. (ii) If chronic nephritis and uræmia are present and severe, operation is contraindicated. (iii) E. J. Lloyd warns against attempting the insertion of a nail in the treatment of old women with pneumonia, whereas Brittain advises it. Thornton and Sanderson do not defer operation on this account and record no deaths in 60 cases. My own preference is to treat the pneumonia first with penicillin and sulphonamide drugs and operate as soon as possible after the pneumonia is under control. (iv) Advanced age need not be considered. There are good nineties and bad seventies. The oldest patient in my series was aged ninety-one years. An expectation of life amounting to no more than one or two years is no justification for the miseries of an ununited fracture. Old people suffering from this injury fear every movement and therefore lie quietly on their backs, so that pulmonary congestion and pressure sores soon develop. The operation itself is not dangerous. It is humane to operate and relieve pain which disappears twenty-four to forty-eight hours after operation. The more I see of these patients, the more I am certain that, provided they have a reasonable chance of surviving the operation, and provided that they are not likely to die within a few days, they should all be treated by the insertion of a nail. It is tragic to see patients who have not been so treated; they are a misery to themselves and to everyone else. Every time they are moved for the use of a bedpan or to be washed they are in agony. Pressure sores develop and they remain bedridden until death occurs.

To sum up: operate and insert a pin unless the patient is moribund.

Anæsthesia.

Several forms of anæsthesia may be used. In three clinics in Melbourne ether is used as a routine measure. Nitrous oxide and oxygen and local anæsthesia may be employed, or local anæsthesia may be used alone. Spinal anæsthesia is another form. In my series of cases at the Launceston General Hospital continuous "Sodium Pentothal" anæsthesia has been used, and up to the present no anæsthetic difficulty has been encountered.

Table I.

Type of Anæsthesia.	Number of Cases.	Number of Deaths.	Mortality.
Spinal anæsthesia	29	4	13·8%
Ether	10	2	20·0%
"Sodium Pentothal" and nitrous oxide	34	2	8·8%
Local anæsthesia	30	13	43·4%

In a series of 103 consecutive cases reported from America, the following mortality rates following different types of anæsthesia is interesting (Table I).

These figures do not represent selected cases. In the early part of the series local anæsthesia was used almost entirely, in the belief that it was to be preferred. Insufficient relaxation, incomplete loss of sensation and operative shock undoubtedly contributed to the high mortality rate.

With regard to the combination of "Sodium Pentothal" and nitrous oxide, the reduction was carried out under "Pentothal", and later 50% nitrous oxide and just enough "Pentothal" were administered to keep the patient in light anæsthesia. Rarely has more than one gramme of "Sodium Pentothal" been given. In my series the average

amount of "Sodium Pentothal" has been one gramme. The patient is placed on the orthopædic table and two portable X-ray machines are adjusted, one for the antero-posterior picture and one for the lateral picture. The lateral picture is difficult to take, and it is essential to have a good lateral picture. In order to do this the machine is placed between the two abducted thighs parallel to the uninjured leg. The X-ray tube is close to the inside of the injured thigh and rotated slightly upwards in order to give a true lateral picture (the leg being internally rotated). The casette is pushed well under the upper ribs and held approximately parallel to the neck of the femur.

Reduction of the Deformity.

It is essential to reduce the deformity before carrying on with the next stage of the operation. When this has been carried out X-ray pictures are taken in two planes and the surgeon has to satisfy himself that he can introduce a Smith-Petersen nail in the centre of the neck and head of the femur in both planes. If the deformity is not satisfactorily reduced a remanipulation must be carried out. Never be tempted to put a nail in without a satisfactory reduction.

There are various methods by which this deformity can be reduced, and sometimes I have used them all until finally satisfied with the position.

The Whitman Method.—The surgeon holds the lower extremity by the foot, and whilst keeping extension on the leg abducts and externally rotates the thigh, finally strongly internally rotating it.

The Leadbetter Method.—The injured leg is flexed at the hip to 90°. Manual traction is applied in the axis of the flexed thigh, together with slight adduction of the femoral shaft. This is best carried out by the surgeon's facing the feet of the patient with the injured leg over his shoulder. In this position the thigh is then internally rotated and slowly abducted.

The Thomas King Method.—One assistant extends the leg by the foot and rotates the leg outwards. A second assistant disimpacts the fractured surfaces by means of a lateral pull with a sling around the upper aspect of the thigh. At a given signal the first assistant strongly rotates the foot inwards, the second assistant releases his tension and the surgeon presses the neck of the femur backwards with his thumbs and lifts forward the trochanteric region.

The test for a satisfactory reduction is as follows: when the heel rests on the surgeon's hand the limb remains in the neutral position and does not externally rotate.

X-ray pictures are then taken to confirm the reduction, and if the position is satisfactory the technician measures the angle of the neck to the shaft of the femur. This is done by taking the antero-posterior picture, marking a line down the centre of the head and neck of the femur and measuring the angle that this makes with the outer margin of the femur. The angle usually varies from 115° to 130°. The lateral picture is then taken and the angle between the neck and the horizontal is measured. This is generally 10° to 15° backwards.

Operation.

The incision is commenced over the greater trochanter and extends down the lateral aspect of the thigh for a distance of approximately five inches. The incision goes through skin, subcutaneous tissue, *fascia lata* and the *vastus externus* muscle. The only bony landmark is the third tubercle, which is the roughened lower portion of the greater trochanter where the *vastus externus* muscle gains its origin.

The metal protractor with cannula attached is placed along the femur so that the cannula is centred about one finger's breadth below the third tubercle and in the centre of the bone when viewed from the lateral aspect. The cannula is then set at the requisite angle. With the aid of either an electric drill or a Johansson drill a Kirschner wire is drilled along the neck of the femur into the head, the direction in the lateral plane being not parallel but 10° to 15° backwards. One can feel the wire going into the hard bone of the head. Protractor and cannula are then removed. The Engle May direction finder is then placed on the wire and X-ray pictures are taken in the antero-posterior and lateral planes.

If the wire is not correctly placed in both planes, adjustment can easily be made with the direction finder and a correct guide wire introduced. The Engle May direction finder will correct the wire only in one plane at a time. If the first wire is wrongly placed in both antero-posterior and lateral views, one corrects the antero-posterior error first and then retakes pictures in the lateral plane with the direction finder on the newly placed guide wire.

From the X-ray pictures one knows (i) whether the guide wire is placed correctly in both antero-posterior and lateral planes, and (ii) the depth to which the guide wire has penetrated into the head.

All Kirschner wires being the same length, one knows the length of wire penetrating the bone and hence the required length of the Smith-Petersen nail. The Smith-Petersen nail is now driven along the Kirschner wire, a careful watch being maintained to see that the wire is not driven in with the nail. The wire is removed before the nail is driven right home.

The wound in then sutured in layers and a final X-ray picture taken.

Essentials of Operative Technique.—The following are the essentials of operative technique: (i) accurate reduction—never be tempted to carry on the operation without a satisfactory reduction; (ii) first-class X-ray pictures, especially in the lateral view; (iii) correct length of nail—the nail must be in the centre of the neck and head of the femur in both the anterior and lateral planes. If there is any error, too low is better than too high, and posterior is permissible in the lateral view, but never anterior.

Post-Operative Treatment.

After operation the patient is placed in bed with the foot of the injured leg in a slipper with a wooden spreader attached. This prevents external rotation. The patient is propped up as soon as consciousness returns. Morphine as required is given for pain. "Stir up" treatment is carried out to prevent lung complications. Ankle and knee movements are begun after twenty-four hours and hip movements after ninety-six hours. The patient remains in bed for one month. After one month he sits on the side of the bed and swings his leg so that full knee movement is regained. The patient walks with crutches until union is solid. No weight-bearing is permitted until union is solid, as shown by X-ray examination.

Complications.

Eric I. Lloyd states that "the bad results of nailing are the results of bad nailing". To my mind this statement is incorrect. "Bad nailing" definitely gives bad results; unfortunately "good nailing" can also give poor results.

The three main complications which occur even after correct insertion of the nail are non-union, aseptic necrosis of the head of the femur and osteoarthritis. With regard to non-union, Pauwel states that the smaller the angle between the fracture site and the horizontal, the greater the chance of union.

Two features must be noted with regard to aseptic necrosis of the head of the femur: (*a*) the incidence varies inversely with the age; (*b*) the greater the Pauwel's angle, the greater the chance of aseptic necrosis. The radiological signs of necrosis are increased density and lack of distinction in the trabecular outline. In observing a case of necrosis there are three points to note: (i) radiological signs of necrosis, (ii) the onset of necrosis and collapse, (iii) preservation or lack of joint space.

Osteoarthritis is a common complication following the insertion of a nail, and may occur early or as a late complication coming on some years after the operation.

RESULTS OF OPERATIVE TREATMENT.

The Royal Bristol Infirmary.

The following are the final results in 75 consecutive cases at the Royal Bristol Infirmary. In this series there was no selection of cases, and the only patients who were

refused operation were those whose general condition was so poor as to render the operation an unwarranted risk.

The standard for a successful result is a patient followed up for a minimum period of one year and falling into one of the following groups: (i) patients whose radiograph shows bony union and no signs of necrosis of the femoral head or of other complications; (ii) patients who cannot be radiologically examined, but who have a range of movement in the hip of over 80%, and no more pain than a mild ache; (iii) patients not examined radiologically or clinically, but reporting little or no ache, full activities for age and circumstances and a free range of movement. The results were as follows. Bony union occurred in 58·7% of cases; successful results were recorded in 50·7%, bony union and necrosis in 6·7%, bony union and arthritis in 1·3%, "failed union" in 8·0%, fibrous union in 13·3%, local suppuration in 4·0%, death in 5·3% and doubtful end results in 10·7%.

Results Published by Thomas King.

Results published by Thomas King of the first 50 consecutive fractures examined at least one year after operation are as follows: non-union in three cases, osseous union (X-ray examination) in 37, death (under one month after operation) in six, death in first year in one, results unknown in three.

Degenerative changes in the head of the femur causing osteoarthritis following osseous union occurred in 14 cases. Hence over one-third of patients with osseous union develop osteoarthritis.

Launceston General Hospital.

During the years from 1938 to 1945, 27 selected patients were operated on at the Launceston General Hospital for fracture of the neck of the femur; 17 of these were reviewed two years after operation and seven cases were unable to be traced. The immediate mortality was one, and two patients died within one year. Of the remaining 14 cases, non-union was present in two, bony union and good results had been achieved in six and bony union and osteoarthritis were the result in six.

During the sixteen months from April, 1946, to July, 1947, 14 patients with intracapsular fractures and six with extracapsular fractures of the femoral neck were admitted to the Launceston General Hospital.

Of the 14 with intracapsular fractures, two were refused operation. One was aged 101 years, the general condition was poor and the mental condition was deranged. The second, aged eighty-two years, had severe cardiac failure and uræmia.

Two fractures of the abduction variety did not require the insertion of nails; both these united before six months had elapsed.

Ten patients were subjected to operation and of these, eight have been followed up for six months or more. These patients were all females, their average age being seventy-one years; the eldest was aged eighty-one and the youngest fifty-six.

The position of the fractures was as follows: subcapital four, transcervical four, intertrochanteric two.

The immediate mortality was nil. The mortality in six months was one. This patient had bony union. Death was due to chronic nephritis and uræmia. Of the remainder of the cases, non-union was present in one, bony union and a good result were present in six, and bony union and osteoarthritis were present in one.

Bony union occurred in seven cases, the quickest X-ray evidence of firm bony union being found in three months and the slowest in ten months.

The patients with bony union and good results show no X-ray evidence of osteoarthritis and have practically a full range of movement in the hip except for internal rotation (which is limited), no pain and full activities for their age. The case of non-union was that of a subcapital fracture; great difficulty was experienced in reducing the fracture, and the nail was not in the centre in the lateral view and it slid out.

The case in which osteoarthritis developed was also difficult; the fracture was hard to reduce and the pinning was bad—the nail was too short and badly placed, and later it broke out of the head.

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INTRAPERITONEAL HÆMORRHAGE DUE TO RUPTURE OF A GRAAFIAN FOLLICLE WITH PRESENTATION OF THREE CASES.

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Nelaton in 1851 suggested that intraperitoneal hæmorrhage might be the result of rupture of the Graafian follicle. The first case of this nature was reported by Wilson in 1905. Since then a number of isolated cases and several small series have been reported in the literature. The first large series of 58 cases was presented by Hoyt and Meigs in 1936. Harris and Groper presented 45 cases in 1939, Guy and Rotondi 52 cases in 1940, and Keller and Rosahn 42 cases in 1941. The total number of cases reported to date is approximately 500.

Reports of Cases.

CASE I.—Miss J., aged eighteen years, was admitted to the Launceston General Hospital on April 14, 1947, at 6 p.m. complaining of severe colicky pain in the right iliac fossa, which had started two hours prior to her admission to hospital. A diffuse pain was also felt in the hypogastrium and to a lesser extent in the left iliac fossa. The patient had been nauseated when the pain commenced, but had not vomited. Her appetite had been good, the bowels regular and micturition normal. Her menstrual periods were usually regular; the last period had commenced fourteen days before the onset of symptoms and was apparently normal. There was no history of intermenstrual discharge and she denied sexual intercourse.

On examination of the patient her temperature was 99·4° F., her pulse rate was 112 per minute, and the respirations numbered 24 per minute; the blood pressure was 150 millimetres of mercury (systolic) and 95 millimetres (diastolic). No abnormality was discovered in the heart and lungs. Tenderness was present across the whole of the lower part of the abdomen, this being most pronounced over McBurney's point. There was no rigidity and no mass or viscus was palpable. Rectal examination revealed pronounced tenderness on the right side of the cervix. No vaginal examination was made, on account of the patient's age and her denial of intercourse.

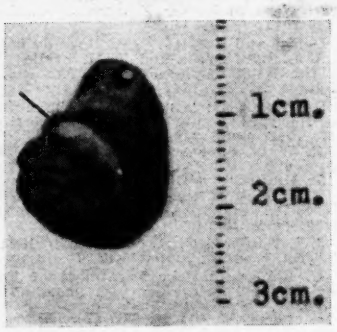

FIGURE I.
Case I. Macroscopic specimen. The arrow indicates a whitish ridge which at the operation was mistaken for an early embryo.

A pre-operative diagnosis of acute appendicitis was made and the patient was operated on shortly after her admission to hospital. The abdomen was opened by a right lower transverse incision. When the peritoneum was opened, a fair amount of dark blood and a few small clots were found. The appendix was found to be normal. The pelvic organs were then inspected. The uterus and both Fallopian tubes were found to be normal. On the postero-medial surface of the right ovary there was a tear about one inch long, and protruding through it was an oval piece of tissue macroscopically resembling chorionic tissue. This lump was shelled out with ease. The rent was oversewn and the wound was closed. Further examination of the lump revealed a whitish ridge about 1·2 centimetres long which macroscopically resembled an early embryo. A provisional operative diagnosis of an early ruptured ovarian pregnancy was made. The Aschheim-Zondek test was performed next day, and the result was negative. The pathologist's opinion on the microscopic sections was that they represented a Graafian follicle distended with blood clot. Surrounding the clot was a layer of granulosa cells, just beginning to undergo luteinization.[1]

CASE II.—Miss R., aged twenty-one years, was admitted to the Launceston General Hospital on September 21, 1947, at 5.30 p.m. On the previous morning she had suddenly developed severe pain across the hypogastrium. The pain lasted with spasmodic exacerbations for two hours and then diminished. In the afternoon she felt as if she was about to faint. The pain was hardly noticeable in the evening and she slept well, but it recommenced next morning. It was then a dull ache, which was felt "as if gathered up" just to the right of the umbilicus. It was constant and persisted until her admission to the hospital. Her appetite had been good and her bowels open regularly. She had experienced slight pain on micturition, but no frequency. Her menstrual periods were regular. The last menstrual period commenced seventeen days prior to the onset of symptoms and it was apparently normal. There had been no intermenstrual discharge.

On examination of the patient, her temperature was 98·6° F., her pulse rate was 76 per minute and her respirations numbered 18 per minute, and her blood pressure was 140 millimetres of mercury (systolic) and 80 (diastolic). Her tongue was clean. No abnormality was detected in the heart and lungs. Examination of the abdomen revealed some voluntary resistance of the right rectus muscle. There was tenderness across the whole lower portion of the abdomen, this being most pronounced low down in the right iliac fossa, and over a small indefinite lump which was palpable in the left iliac fossa just above Poupart's ligament. Pelvic examination revealed tenderness in all the fornices, more pronounced on the left side. An indefinite small lump was palpable in the left fornix. The uterus was of normal size and it was lying in the mid-axial position. Rectal examination revealed tenderness over the whole of the pouch of Douglas. Chemical and microscopic examination of the urine revealed no abnormality.

A diagnosis of a probable ruptured Graafian follicle cyst with intraperitoneal hæmorrhage was made. The patient was put on Ochsner-Sherren's *régime*. After twenty-four hours, when the pain had not settled down and the area of tenderness had increased, it was decided to operate.

The abdomen was opened by a right lower transverse incision. When the peritoneum was opened a large amount of blood and clot was encountered. It was estimated that over one pint of blood was present in the peritoneal cavity. The uterus, the right ovary and the right Fallopian tube were found to be normal. On palpation the left ovary felt enlarged, and a soft, incompletely filled cyst could be felt. The incision was enlarged through the right rectus muscle, and the left ovary and tube presented themselves for examination. No abnormality was found in the left tube. The left ovary was seen to be enlarged to about twice its normal size. On the posterior surface of the left ovary was a partially collapsed cyst containing blood. It measured about three-quarters of an inch in diameter. There was a small tear about one-eighth of an inch long in the wall of the cyst. Blood was seen oozing slowly from this tear. The tear was oversewn and the pelvis was cleared of blood and clots. The appendix was then inspected. It was found normal, but nevertheless it was removed. The patient had an uneventful convalescence. She started menstruating three days after the operation. The menstrual period was normal, but it had commenced five days before the expected date.

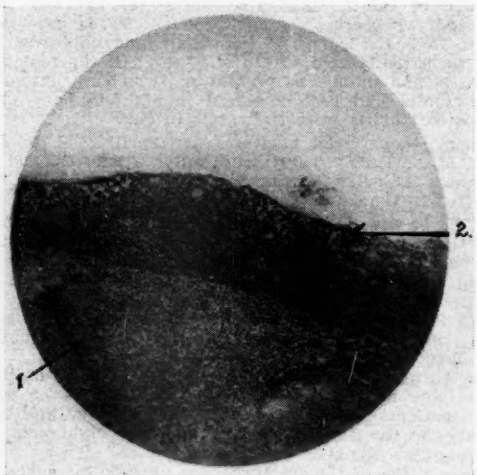

FIGURE II.
Case I. Microscopic specimen: 1, blood clot; 2, layer of granulosa cells showing early luteinization change.

CASE III.—Miss E., aged fifteen years, was admitted to the Launceston General Hospital on November 26, 1947, complaining of attacks of pain in the right iliac fossa for about one week. The attacks were spasmodic, occurring once or twice a day, each attack lasting about five to fifteen minutes. They were not of a colicky nature. The attacks were apt to occur whilst she was running or jumping. Her appetite had been good, but since the onset of symptoms she felt nauseated after meals. She vomited only a few times. Her bowels had been open regularly and micturition was

[1] Opinion on sections was given by Dr. H. F. Bettinger, Director of the Department of Pathology, Women's Hospital, Melbourne.

normal. Her menstrual periods were irregular, occurring at intervals of three to six weeks and lasting about seven days. Her last menstrual period had commenced on November 11, nine days prior to the onset of her symptoms.

On examination of the patient, her temperature was 98·4° F., her pulse rate was 104 per minute, and her respirations numbered 20 per minute; her blood pressure was 130 millimetres of mercury (systolic) and 85 (diastolic). Her tongue was clean. No abnormality was detected in the heart and lungs. The abdomen was lax. There was some tenderness low down in the right iliac fossa extending medially to just above the *symphysis pubis*. The tenderness was at its maximum about one inch below McBurney's point. Rectal examination revealed no abnormality. A diagnosis of subacute appendicitis was made and it was decided to operate.

The abdomen was opened by a right lower transverse incision. When the peritoneum was reached it was noted to be plum-coloured. The peritoneal cavity was found to contain a fair amount of blood-stained fluid, approximately 10 to 15 ounces. The right ovary was enlarged and on its posterior surface there was a small cyst, approximately half an inch in diameter. It was filled with blood clot. A small tear was present about the centre of the cyst, and blood was seen oozing slowly from it. The cyst was excised and the rent was oversewn. A normal appendix was removed and the wound was closed. The report on sections was as follows: "Sections confirm a ruptured Graafian follicle cyst."[1] The patient's recovery was uneventful.

The diagnosis of a ruptured Graafian follicle cyst was discussed prior to operation, but was discounted because symptoms first appeared nine days after the last menstrual period. In view of the fact that her menstrual cycles were so irregular less emphasis should have been attached to this point.

Clinical Aspects.

Cases of intraperitoneal hæmorrhage due to rupture of a Graafian follicle or *corpus luteum* retention cyst are not excessively rare. The peritoneum may contain anything from a few millilitres of blood-stained fluid up to 1500 millilitres of pure blood. The symptoms and signs vary accordingly. The condition is most frequently misdiagnosed as acute appendicitis. In Hoyt and Meigs's series this clinical diagnosis was made in 56% of cases, in Harris and Groper's in 54% of cases. The next most common mistake is confusion of this condition with a ruptured ectopic pregnancy.[2] While it is difficult to diagnose a case of intraperitoneal hæmorrhage due to rupture of a Graafian follicle prior to laparotomy, it is of great interest to find that it was achieved in 17 of 58 cases in Hoyt and Meigs's series. Milder forms of complications of ovulation, yet sufficient to produce fairly severe abdominal pains, are common. Analysis of cases of abdominal pain from Boston Hospital showed that the proportion of cases of appendicitis to cases of abnormal ovulation and its sequelæ was in the ratio of 13 to 1. In the 257 of these cases presented by McSweeney and Wood the pre-operative diagnoses were as follows: subacute appendicitis 70, acute appendicitis 65, chronic appendicitis 28, ectopic pregnancy 3, abnormal ovulation and its sequelæ 25, presumably abnormal ovulation or its sequelæ (no operation) 31.

Diagnosis and Differential Diagnosis.

In the severe form of this condition it is undoubtedly difficult to make a correct pre-operative diagnosis. These patients, because of their more dramatic symptoms and signs, would probably come to laparotomy even in the hands of the most conservative surgeons. It is in the milder forms that every attempt should be made to arrive at a correct diagnosis and so save unnecessary laparotomies. The following are the main points which are of help in the differentiation of this condition: (i) It occurs most commonly in the second and third decades of life. (ii) The onset of symptoms occurs between the fourteenth and twenty-first days after the last menstrual period. (iii) Pain is invariably present in this condition. The pain is of sudden onset and usually starts in either right or left iliac fossa. It is at first of spasmodic nature, often with complete remissions between the attacks. The pain frequently changes its location. Later it is diffused through the hypogastrium and to the other side. It also becomes dull in character. (iv) Nausea is present in the majority of cases, but vomiting is rare. (v) Tenderness varies in degree. As a rule it is maximal low down close to Poupart's ligament. (vi) The temperature is normal or only slightly elevated. The pulse rate is slightly elevated, but in the majority of cases it is below 100 per minute. (vii) Vaginal examination can help occasionally. Usually the cysts are too small to be palpable, but a definite ovarian tenderness may help in distinguishing this condition from appendicitis.

Treatment.

If the condition is correctly diagnosed, and unless signs of massive intraabdominal hæmorrhage are present, the treatment should be conservative. The patient is placed in bed and is observed at frequent intervals. When symptime and signs point to an increasing blood loss into the peritoneal cavity, or when the diagnosis is still doubtful after a reasonable period of observation, then surgical intervention is necessary. When the condition is diagnosed at operation, often no further treatment of the affected ovary is necessary. In some cases oversewing of the laceration or partial oophorectomy may have to be carried out. In only a very few cases is total oophorectomy indicated.

Summary and Conclusions.

1. Three cases of intraperitoneal hæmorrhage due to a ruptured Graafian follicle are presented.
2. It is stressed that this condition is not infrequent and that an attempt should be made to arrive at the correct pre-operative diagnosis.
3. The diagnosis, differential diagnosis and treatment are discussed.
4. In cases in which pre-operative diagnosis of appendicitis is made and is not confirmed at operation, the condition should be borne in mind and looked for.
5. The collection of further data would probably lead to the establishment of this syndrome on a firmer basis.

Acknowledgements.

I wish to express my thanks to Dr. C. Craig, the Surgeon Superintendent of the Launceston General Hospital, for permission to publish these three cases and for his constructive criticism which helped in the preparation of this paper; to Dr. H. F. Bettinger, the Director of the Department of Pathology, Women's Hospital, Melbourne, for his opinion on the microscopic sections; to Dr. R. Y. Mathew and Dr. C. Duncan for the preparation of and opinions on microscopic sections; and to Miss K. Welch for the preparation of the photographs of the macroscopic specimen.

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[1] Opinion on these sections was given by Dr. R. Y. Mathew, Medical Officer in Charge, Commonwealth Health Laboratory, Launceston.

[2] It is interesting to note that both these mistakes were made in the first case of this series.

REITER'S DISEASE.[1]

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IN recent years several reviews of Reiter's disease or Reiter's syndrome have appeared in the American and English literature together with reports of cases. So far I do not think that any cases have been reported in the Australian journals.[2]

The syndrome consists of non-gonococcal urethral discharge, polyarthritis and conjunctivitis. The original description was given by Hans Reiter[1] in 1916. He described the case of a young officer whose illness started with diarrhœa, the fæces containing blood. Two days later conjunctivitis and arthritis of the right knee developed. Subsequently the arthritis extended to other joints. After some ten weeks the patient's condition improved slowly, but at the time of Reiter's report some thirteen weeks after the onset of the disease, arthritis was still present.

The triad of symptoms—non-gonococcal urethral discharge, polyarthritis and conjunctivitis—has been reported by other authors, particularly in the last few years. In some of these reported cases diarrhœa has been present in addition, as in Reiter's original case, and in others skin rashes of various types have been present.

Ætiology.

Reiter isolated a spirochæte from the blood of his patient; he named this organism *"Spirochæta forans"*; it differed in staining reactions from *Spirochæta pallida*. He considered that his spirochæte was the ætiological agent.

Subsequent observers have failed to confirm his finding and numerous other organisms have been incriminated. The following have been blamed: staphylococci, enterococci, the organism of pleuropneumonia, dysentery bacilli and a filterable virus.

It is interesting that the original patient presented with diarrhœa and blood-stained fæces. Wood[2] and Kay[3] hold that the syndrome is consequent on infection with the organisms of bacillary dysentery. The former stated that in approximately a dozen cases which he encountered during the late war he obtained a history of dysentery in "nearly all". The symptoms of urethritis occurred after a latent period of about ten days. Wood claims to have produced sterile conjunctivitis in three of his cases by instilling a drop of Flexner vaccine into the conjunctival sacs. He was unable to use an autogenous vaccine, as attempted cultures from the stools were unsuccessful when his patients were examined. Conjunctivitis did not occur in normal controls, or in those suffering from gonococcal arthritis or from rheumatic fever.

Findlay[4] has described arthritis and conjunctivitis caused by pleuropneumonia-like organisms in rats and mice, and states that similar lesions have been noted in bovine pleuropneumonia. He states with others[5] that pleuropneumonia-like organisms have been isolated from the urethra of normal persons, and more frequently from the urethra of patients suffering from non-specific urethritis.

Findlay and his associates attempted unsuccessfully to grow these organisms from the blood and joint fluid of two patients. They did produce arthritis in one mouse out of twelve when blood and joint fluid were injected into the hind feet. However, they point out that no conclusion could be drawn from that very moderate finding.

Harkness[6] claims to have demonstrated inclusion bodies in the discharge from the urethra and conjunctiva. He suggests the possibility that they represent one stage in the development of pleuropneumonia-like organisms.

Signs and Symptoms.

In most of the cases reported urethral discharge is the first symptom, followed later by arthritis and conjunctivitis. Jackson[7] remarks that it is accompanied by surprisingly little frequency of or pain on micturition. However, complications may occur, and they may give rise to urinary symptoms. Cystitis, prostatitis, pyelitis and hæmaturia have been reported frequently. In Reiter's original case pain was present on micturition, and he refers to cystitis as one of the symptoms.

The urethritis frequently occurs in those who have no history of exposure to venereal disease. Gonococci are not found in the discharge, and attempted culture on ordinary media produces no growth of organisms. There is no response to treatment with sulphonamides or with penicillin. The gonococcal fixation test produces a negative result unless there has been previous gonococcal infection. However, Harkness[6] suggests that double infection with gonococci and with the organisms producing inclusion bodies occurs in some cases. The duration of the discharge varies from days to several months.

Arthritis.

Arthritis affects many joints. Large or small joints of the limbs may be attacked, and pain may flit from joint to joint like that of acute rheumatism. The inflammation is of variable duration, but frequently lasts for several months. During the acute stage severe pain and tenderness may be present, and large effusions may develop in the joints. Some degree of osteoporosis and atrophy of the bones may occur.

Eye Symptoms.

Conjunctivitis is frequently purulent, and no specific organism has been found; but, as was mentioned before, Harkness has demonstrated inclusion bodies in the discharge. This symptom has been absent in some cases which otherwise appear to be examples of the same disease. As with the other symptoms, the duration is variable. Other eye complications are not common. In some cases iritis has been reported (for example, Baxter[8]); but permanent damage to the eye does not appear to result. Reiter reported scleritis and iritis in his case.

Skin Lesions.

Erosions of the *glans penis* are common. Generalized rashes have been recorded. The most striking affection of the skin is *keratodermia blennorrhagica*, which has been reported in a number of cases.[6][9][10] This condition was originally described by Vidal in 1893. The first case recognized in England was reported by Sequeira in 1910.[11] The latter, in the 1927 edition of his book, described the condition as "a symmetrical horny eruption on the soles occurring in gonorrhœa". Harkness[6] in 1945 found less than 100 cases reported in the literature. He was able to demonstrate inclusion bodies in scrapings from the lesions in several cases, and considers that this condition is also a manifestation of Reiter's disease. In reporting twenty cases of this skin condition he described four cases in which there was no evidence whatever of gonorrhœa, and two others in which evidence was doubtful, consisting of a positive response to the gonococcal fixation test only. He describes a syndrome associated with the eruption consisting of (i) urethritis, (ii) polyarthritis with or without other metastatic complication, (iii) cachexia and (iv) pyrexia. In all but four of the cases he found recorded in the literature the condition was associated with arthritis. It was so associated in all his twenty cases.

This condition of keratodermia was reviewed by Gray[12] in 1941. He quotes Epstein,[13] who pointed out that doubt existed as to whether the manifestations were due to infection or to a toxic process. The same author[14] discussed the relation of *keratodermia blennorrhagica* to *psoriasis arthropathica*. He concluded that the two conditions were distinct. Other authors[15] are quoted by Gray. They describe the course of the skin condition. They state

[1] Read at a meeting of the Tasmanian Branch of the Royal Australasian College of Physicians in October, 1947, at Launceston.

[2] Since this paper was read an article on this subject has appeared in THE MEDICAL JOURNAL OF AUSTRALIA of November 8, 1947, at page 574, by R. A. Godfrey-Smith.

that the initial lesion begins as an erythematous macule which arises deep in the epidermis. It contains a small amount of fluid. In a short time the lesion becomes waxy and almost translucent and on incision is perfectly dry. They describe a heaping up of yellow waxy material beneath the nail plate. The nail becomes dry and brittle and is lifted up from its base. The free end is rough and broken. Subungual keratoses are tender; they may involve the nail independently or be continuous with keratoses of the adjacent fingers and toes, in which case there is an associated paronychia.

Lesions also occur in the mouth. They develop rapidly and disappear in a few days, leaving only dusky red eroded areas which heal without scarring.

These authors point out that the arthritis in cases in which this complication is present differs from the usual gonorrhœal monoarthritis; it is usually polyarticular and involves particularly the knees, ankles, wrists and acromioclavicular joints. These observations, together with those of Harkness, suggest that this condition, which is usually thought to be a complication of gonorrhœal infection, may in fact be due really to an infection of an entirely different nature. Perhaps when the condition occurs in patients suffering from gonorrhœa these patients are also the victims of another infection as well. Another possibility is that it is an allergic or toxic manifestation, the result of infection of various kinds.

The Course.

The course of the disease is variable, and recurrences appear to be not uncommon.[9] Fever of longer or shorter duration is usual. Recovery without disablement would seem to be the rule. During the illness there may be some anæmia and a moderate leucocytosis.

Treatment.

Rest in bed appears to be the most important form of treatment. The sulphonamides and penicillin are of no value. I have not seen reports of cases in which streptomycin or the newer antibiotics were used.

Gold injections have been used,[9] and artificial pyrexia has been tried with some success. However, most patients appear to recover without these methods of treatment, although the course may be prolonged. Reiter used a few injections of neoarsphenamine in his case with doubtful benefit.

Report of a Case.

The following case, although at no time associated with conjunctivitis—one of the cardinal triad of symptoms—can, I think, be labelled one of Reiter's syndrome.

Mr. H.W., aged twenty-seven years, was admitted to the Launceston General Hospital on April 22, 1947, with symptoms which appeared to be due to rheumatic fever. Eight days previously he had developed pain and stiffness in the right knee. The pain was so severe that he could not move the leg. Subsequently he had developed pain in the right ankle, then in the left ankle and later in the left wrist. His mouth had been sore for a week before his admission to hospital. He had sweated profusely on several occasions during the week. He had suffered from some form of pneumonia several years previously, and had subsequently served in the army and had been taken prisoner by the Japanese. While in captivity he had suffered from malaria, dysentery, cholera and beriberi. He had married some seven weeks prior to his admission to hospital.

Examination of the patient revealed the following findings. His temperature was 101° F., his pulse rate was 98 per minute and his respirations numbered 20 per minute. His gums were œdematous and inflamed. He had an upper denture. Some of his lower teeth were carious. His tongue was red, glazed and inflamed, as was his throat. His breath was offensive. His heart was not enlarged. A systolic bruit of moderate intensity was audible, loudest at the apex. There were a few enlarged lymph glands in the neck and axillæ. There were a few papules on the *glans penis*. Several joints were inflamed. His right knee and left ankle were painful when moved. His left ankle was tender, but movement was free. His left wrist was swollen, tender and exquisitely painful on movement. The metacarpo-phalangeal joints of the left hand were swollen and painful when moved.

Except for his tongue and mouth the history and clinical findings appeared consistent with rheumatic fever, and so he was treated with sodium salicylate, 150 grains per day in divided doses, and given large doses of the vitamin *B* group by mouth. Some symptomatic improvement occurred, but his temperature did not settle completely and the diagnosis remained in considerable doubt.

On May 13 a rash was noticed on his feet and hands, mainly on the soles and palms, which recalled descriptions of *keratodermia blenorrhagica* which I had not seen before and had thought occurred only in cases of gonorrhœa. It was realized then that a serious omission had been made in the taking of the history, although an examination for urethral discharge had been made at the time of his admission to hospital. The patient, when questioned, stated that he had been treated with sulphadiazine for a urethral discharge prior to his admission to hospital. Examination that day revealed a profuse purulent discharge, and the diagnosis then appeared to be gonococcal arthritis. However, it was discovered that repeated examinations of smears before his admission to hospital and before treatment had failed to reveal gonococci, and subsequent examinations of smears in hospital also gave negative results. The gonococcal complement-fixation tests also gave negative results on both occasions. The patient's wife was examined and she showed no sign of gonorrhœa.

He was then treated with penicillin in oil, 125,000 units twice a day, without response. This treatment was stopped on May 22, and sodium salicylate therapy was recommenced. During this time saline packs and later penicillin cream were applied to the skin lesions without relief.

By May 27 his general condition had improved, but his skin condition had not improved and the urethral discharge was still present.

By June 18 there was considerable swelling of the metacarpo-phalangeal joints of both hands, which were very painful. The skin on the soles of the feet and on the palms of the hands had not improved, and the skin around the nails had become badly involved. Several toenails had dropped off, and it was obvious that he was going to lose other toenails and some fingernails. Underneath the remaining nails was a quantity of rather cheesy material.

On June 28 it was decided to try the effect of small doses of gold in the form of "Myocrisin" 0·01 gramme at weekly intervals; only three injections were given.

On July 4 he was given sulphadiazine, one gramme every four hours. On July 8 there was a large effusion in his left knee joint, and he volunteered the information that the sulphadiazine given before his admission to hospital had made him worse. The exhibition of this drug was discontinued immediately. His temperature rose to the highest since his admission to hospital on July 10, when it reached 102·6° F.

From July 18 to 31 he was given penicillin, 15,000 units in watery solution every three hours, without any noticeable improvement; but when the administration of this drug was stopped he began to improve immediately, and so far his convalescence has been uninterrupted.

On August 6 he still had slight purulent urethral discharge, but it was insignificant compared with that previously present. On August 8 he was allowed up in a wheel chair. He was discharged from hospital. Convalescence has continued. He still has (October, 1947) residual arthritis of the ankles and of the joints of his hands and fingers. His skin has healed completely, and now his fingernails and toenails are regenerating. There is no urethral discharge.

Comment.

In this case the following features were present: non-gonococcal urethral discharge and polyarthritis, and later skin lesions answering to the description of *keratodermia blennorrhagica*. At no time during the course of the disease did the patient have diarrhœa or conjunctivitis.

There was no apparent response to salicylates, penicillin or gold, and sulphadiazine appeared to have a deleterious effect. After a course of some months the disease appears to be in the process of resolution.

No attempt has been made to elucidate the ætiology of the condition. As was previously remarked, this has been attributed by various authors to dysentery of bacillary origin, to the organism of pleuropneumonia or perhaps to a virus.

It was noteworthy that of the many urethral smears examined the report in all except one instance stated the findings as "pus cells and debris". The one exception showed in addition only a few Gram-positive cocci.

A culture from the skin lesion was overgrown with *Staphylococcus albus*. No fungus was demonstrated on examination of a direct smear. No attempt at a culture was made.

The blood sedimentation rates were high, as would be expected.

Leucocyte counts gave the following results: (i) April 26, 14,700 per cubic millimetre, 12% eosinophile cells; (ii) June 18, count not made, 11% eosinophile cells in the smear; (iii) June 30, 14,300 per cubic millimetre, 14% eosinophile cells; (iv) July 7, 17,400 per cubic millimetre, 13% eosinophile cells. No cause for the eosinophilia was discovered. As the patient had been a prisoner of war, his fæces were repeatedly examined for amœbæ, cysts and ova, but none was found. I have not seen eosinophilia reported in this syndrome before.

The rash on the soles and palms appeared to consist of moderate-sized bullæ. When some of these were pricked no fluid was obtained. The appearance of bullæ was produced by irregular thickening of the skin. The skin around the nails became reddened and thickened and was covered with pin-point pustules. A similar type of eruption appeared to some extent on the dorsa of the feet and hands.

A small lesion appeared on the right knee. This lesion could possibly have been attributed to psoriasis, and the whole condition, with the exclusion of the urethral discharge, could then possibly have been considered rheumatoid arthritis with psoriasis.

At the height of the eruption the skin of the *glans penis* had a lesion similar to that on the backs of the hands and feet.

Treatment of the skin lesions was confined to the application of bland dressings, such as saline packs, penicillin cream and Lassar's paste, except for one brief time when Whitfield's ointment was used, as it was suggested that the skin lesions might have been due to a fungous infection. This ointment had no effect, good or bad.

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WILLIAM FORSTER: PRACTITIONER OF PHYSICK AND CHIRURGERY.

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I HAVE in my possession a collection of magazines and pamphlets on a wide variety of subjects published between the years 1723 and 1746. Some former owner has had them bound into a single volume, and though the binding has become sadly tattered over the years, the individual items are in remarkably good condition.

Included in the collection are several sermons and religious tracts and an account of the proceedings of "The Society for the Preservation of Manners". The main object of this society seems to have been the prosecution of fellow citizens for lewd and disorderly practices, drunkenness, profaneness and working on the Sabbath. There were, too, a description of Gunter's quadrant (an improved instrument for making astronomical observations) and some astronomical tables to use with it; an account of "The English Spaw" at Harrogate and several numbers of *The British Magazine.* That of August, 1746, gave eye-witness accounts of the executions of some of the "Young Pretender's" followers, the peers by decapitation and the commoners by hanging.

But, to the medical man, the item of greatest interest was a treatise by William Forster, "Practitioner of Physick and Chirurgery", which bore the title: "A Treatise on the Various Kinds and Qualities of Foods; with Aphorisms of Health, or Rules to preserve the Body to a Good Old Age. To which is added a compendious Discourse on the Diseases of Children."(1) This treatise was printed for the author by John White of Newcastle-upon-Tyne in 1738. Before considering the treatise in detail, I propose to review briefly the state of medical and scientific knowledge which existed at that time.(2)

Already the science of natural philosophy had been placed on a sound basis by the publication of Newton's *"Principia"* fifty-one years before, while the publication of the first edition of Linnæus's *"Systema Naturæ"* in 1735, in which he introduced the binomial classification of plants, had laid the foundations of the systematic study of the natural sciences. On the other hand, the study of chemistry was still hampered by the "phlogiston" theory; medical science was still based to a great extent on humoral theories of disease, and astrology was still a respectable branch of learning.

That year saw the death of one of the greatest clinical teachers of the age—Simon Boerhave, of Leyden. Alexander Monro, *Primus,* reigned as professor of anatomy at Edinburgh, while one of the leading surgeons of the day was William Cheselden, who, among other things, was famous as a lithotomist. Percival Pott was then a young man of twenty-four, while John Hunter was a boy of ten.

Such was the period in which William Forster lived and practised his profession.

In the preface to his treatise he gave his ideas on the absorption, utilization and functions of food. These ideas were, no doubt, those generally accepted at that time. To give some idea what they were I can do no better than quote his initial paragraph, which ran as follows:

> An Animal Body would be little better than a Clod of Earth were it not for the vast Variety of Action which it is able to perform; and this it does by means of the infinite Number of small contractile Fibres, which in every Contraction and Distraction which are Millions in a Day, by their Attrition one against the other, file off from one another vast Numbers of little separable Parts, by which the Fibres daily grow weaker, and would soon be unfit to perform their Functions, were not they as constantly repaired as they are diminished. And whenever the Fibres are in a State of Relaxation, their Pores being opened, then are they in the fittest Condition to have new Matter by the Force of the circulating Humours imparted to them; and in this condition are the Fibres when the Animal is asleep; so as Waking is the Time of Spending, so is Sleeping the Time of Recruiting. Hence, by the bye, we may observe

> the Necessity of Sleeping. Now 'tis our Food, whether Fluid or Solid, that furnishes us with this Supply; and all that is necessary to qualify it for this Purpose, is only that it be by the Force of the Stomach and Lungs, divided into Parts small enough to enter the Poruli of the decayed Fibres.

From that point Dr. Forster went on to state that from the above we might deduce the necessity for the taking of food and for the circulation of the blood, so that the loss of fibres sustained could be made good. In order that we should not neglect something so essential to our well-being and happiness as food, "the bountiful Author of our Being and Happiness" has provided us with an appetite for solids called "Hunger" and an appetite for fluids called "Thirst". Hunger put the body into a contracted state while eating relaxed it. When the stomach was crammed with meat it was less fit for digestion because the relaxed fibres were weaker and could not force the food through the duodenum and into the orifices of the lacteals.

Having enunciated these theories, Forster next proceeded to apply them to the practical problems of feeding, such as the correct amount to eat, the best foods to take and the relation of the time of eating to the hours of sleep. The correct amount to eat, he considered, was the quantity which just assuaged hunger. If an individual ate sufficient to cause uneasiness or sleepiness he had eaten too much, for a distended stomach pressed on the "*Arteria Magna*" and on the *vena cava*, and in consequence obstructed the passage of blood through these vessels, so that an excessive quantity went to the vessels of the head, which became distended and obstructed the flow of "spirits" through the adjacent nerves. As a result listlessness and sleepiness developed.

With regard to the type to choose, he considered that simple foods were more easily digested than compounded dishes, because the fibres in the latter had greater cohesion and in consequence were more difficult to break up. He thought it bad for the digestion to go to bed immediately after a heavy meal, and held that about four hours should elapse between the taking of the evening meal and retiring. The first meal of the day, on the other hand, should be taken about three hours after rising. The poor digestion during sleep was attributed to the greater relaxation of the body at that time.

In discussing the relation of diet to longevity he gave his opinion that people who lived on a frugal diet were more long-lived than those who ate heavy meals, although the latter were usually more energetic. It was noticed, too, that those of pale complexion tended to live longer than those of florid countenance. This was only to be expected, for the "humours" of the latter were more volatile and were therefore more susceptible to external agents. Throughout his writings it can be seen that Dr. Forster was a believer in "moderation in all things".

The treatise proper began by classifying foods into eight groups, as follows: (i) the saline foods, such as salted beef, ham, pork and tongues; (ii) the acid foods, such as summer fruits, vinegar, milk and bread; (iii) the alkalescent foods, such as cabbages, onions, leeks and garlic; (iv) the viscous foods, such as "pease", rice, meal, wheat and calves' feet; (v) the oleaginous foods, like butter, oil and fat; (vi) the hot, acrid foods, like pepper, nutmeg, cloves, ginger and mustard; (vii) the spirituous liquors; (viii) aqueous liquors like water and tea.

In his remarks on each of the above varieties of food Forster stressed the particular ill effects which resulted from over-indulgence in it; but on the other hand he also listed the benefits to be derived from its moderate use. For example, the saline foods, if taken in excess, would "excite Thirst, produce a saline Acrimony in the Animal Fluids, hinder Nutrition, whet and wear the Solids, occasion gnawing Pains and a scorbutick Habit of Body", but "taken in just Proportion only incides viscous Humours, and deterges and scours the Fibres, and moderately stimulates the Solids". Again, "the viscous or glutinous Foods, if used too much, will produce a viscous or glutinous Quality in the Fluids, and thereby Obstructions in the capillary Vessels and Glands, and a diminution of some of the Excretions, and those Distempers which result from such Obstructions, and diminished Evacuations"; while if they were used "only when, and so long as needful tend only to repair the Expences of the Blood and the Waste of the Solids; to maintain the Flexibility of the Fibres and Vessels; and to bring acrimonious Humours into a softer Quality". It is interesting to note that his ideas on the physiological effects of the various kinds of foods were derived mainly, as in the preceding example, from a consideration of their physical properties.

Having dealt with the various groups of foods, Forster discussed next in detail a number of individual foods and drinks. The list included barley, "pease", sago, wheat, bread, eggs, milk, fruits, wines, ales, coffee, tea and many others. It is noteworthy that, although practically all the common foods were dealt with, he was able to ascribe some medicinal property to each. Space permits only a few examples of this to be given here. Barley was highly recommended for colic and nephritic pains, while fried oats placed in a bag and applied to the chest were an excellent remedy for pleurisy. Bread poultices were used in many conditions. Garden beans in the form of bean meal were useful in the "bloody flux", while sago and other glutinous foods were of benefit in diarrhœa. Honey was said to have many virtues, but its chief medicinal use was as an ingredient of expectorant mixtures. Oranges and certain other "Exoticks" were recognized as being beneficial in "hot scurvy".

The portion of the treatise following the discussion of foods consisted of fifty-one "Aphorisms of Health". I will content myself with quoting the following five:

> 1. Plentiful Feeding is more hurtful in a sedentary and idle Person than in one that is employed, for the Entrails are made heavy by Rest, but are eased in their Weight by Exercise.
>
> 2. Purging stools show intemperate Feeding. Too full a Meal hinders Perspiration, fills the Guts with Wind and causes Gripes.
>
> 3. He who goes to Bed with a disturbed Mind, digests much less than another who is undisturbed and cheerful.
>
> 4. Wouldst thou enjoy a long Life, a healthy Body and a vigourous Mind and be acquainted also with the wondrous Works of God, labour in the first Place to bring the Appetite to Reason.
>
> 5. A sober Diet makes a Man die without pain, it maintains the Senses in Vigour and mitigates the Violence of the Passions and Affections. It preserves the Memory, it helps the Understanding, it abates the Heat of Lust; and brings a Man to that weighty consideration of his Latter End.

In his discourse on diseases of children, Dr. Forster dealt first with the difficulty experienced by most people in diagnosing infants' complaints. He thought, however, that little difficulty should be met if the doctor remembered that infants' diseases were few in number and arose from but one cause—namely, excessive acidity. Admittedly, it was difficult to make a diagnosis by ordinary methods like feeling the pulse, which was usually rapid and subject to variation in infants, or by testing the urine, which was usually thick. But much could be learnt from the nurse, who would be able to report such symptoms as colics, belchings, cough, feverishness and abnormally coloured stools.

There were, he thought, four exciting causes of infants' diseases. The first of these was cold, to which infants, coming naked from the protection of their mothers' wombs, were particularly susceptible. The second was excessive thickness of the nurse's milk. This was prone to develop if the good lady was a lover of spirituous liquors. In this case "her Milk is so warmed and on a sudden inflamed, that Fire itself only passeth her Breasts for the sucking Infant". The third exciting cause was the too early eating of meat, while the final cause was the imprudent fondness of some mothers, who permitted their infants to sip wines, ales and other strong drink. Whichever of these causes operated in a given case, the result was the development of excessive acidity in the body, which led to curdling of the milk. In consequence, vomiting, diarrhœa, colic, rickets, convulsions and other ailments developed, and if these were treated incorrectly: "The poor Infant doth cast up the Whites of his Eyes to Heaven, the proper Seat of

Unviolated Innocency, and endeth its short Life before it hath understood the Miseries of Living."

There followed a detailed account of Forster's treatment of sick infants and children; but I will not discuss it here except to note that carminatives and anthelmintics (particularly rhubarb) bulked largely in his formulary. With these remedies he claimed considerable success.

Conclusion.

In the foregoing paragraphs I have endeavoured, by means of extracts from the writings of an eighteenth century physician, to give an account of some of the theories which were current in the medical teaching of those days and of some of the principles which guided physicians in the practice of their art.

The period under discussion is of interest in the development of medical science, for although old superstitions still had a firm grip on men's minds, more rational systems were beginning to be introduced.

Although the physiological theories expressed in Dr. Forster's writings seem quaint to the modern reader, the attitude of mind which he reveals throughout is that of an astute clinical observer. No doubt he was a fairly typical example of the medical practitioner of the period.

Acknowledgements.

My thanks are due to the Director-General of Health, Commonwealth Department of Health, Canberra, for permission to publish this article.

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Reports of Cases.

MASSIVE CARDIAC HYPERTROPHY.

By MAURICE JOSEPH and GASTON BAUER,
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HEARTS weighing more than 1000 grammes are relatively rare, and a careful search of the literature by Golden and Brams[1] in 1937 revealed only 38 such instances in the preceding hundred years, to which these authors were able to add nine cases of their own. A case of massive cardiac hypertrophy which we think worthy of report has recently been encountered in the wards of the professorial unit of the Royal Prince Alfred Hospital. The patient was a youth, aged nineteen years, who had suffered from rheumatic fever. His heart weighed 1500 grammes, a weight which, according to the table compiled by the above-mentioned authors, ranks fifth in the reported literature, and to the best of our knowledge this is the largest heart ever seen at the Royal Prince Alfred Hospital.

Clinical Record.

K.McW. was born in 1927, and his first admission to hospital was at the age of four years, when he was a patient in the Royal Alexandra Hospital for Children. He complained of fleeting joint pains, had mild pyrexia (100·4° F.) and was treated with salicylates. At that time no cardiac lesion was found, but the presumption is that this was his first attack of acute rheumatic fever.

Three years later, in 1934, he was readmitted to the Royal Alexandra Hospital for Children, suffering from acute right *otitis media*, established rheumatic valvular heart disease and chronic tonsillitis. The physical findings referable to the cardiovascular system at this time showed that the apex beat was in the fifth left intercostal space three inches from the mid-line and was of unusually large amplitude. The first mitral sound was much accentuated, and a soft mitral systolic murmur was present. The pulmonary second sound was accentuated and a pulmonary systolic murmur was audible.

One year later, in 1935, he was again in hospital with left-sided *otitis media*, and at that time the mitral systolic murmur was found to be conducted to the axilla.

Two months later, in October, 1935, he was again admitted to the Royal Alexandra Hospital for Children with a recurrent attack of acute rheumatic fever, during the course of which he developed acute pericarditis. This was associated with congestive cardiac failure with œdema of the lower extremities and scrotum, and free fluid in the peritoneal cavity.

On a subsequent admission to hospital in September, 1937, because of an exacerbation of his acute rheumatic fever, examination revealed established mitral and aortic valvular lesions. His pulse was regular, of the Corrigan type, and his blood pressure was recorded as 115 millimetres of mercury, systolic, and zero, diastolic. The apex beat was heaving and diffuse and felt maximally in the sixth left intercostal space, four inches from the mid-line. There were systolic and diastolic aortic murmurs in addition to the mitral systolic murmur.

He was first admitted to the Royal Prince Alfred Hospital in 1942, at the age of fifteen years, with yet another attack of acute rheumatic fever associated with congestive cardiac failure. Investigation of the signs indicated an advancement over those previously recorded. The apex beat was in the seventh left intercostal space in the mid-axillary line, and a mitral presystolic and aortic systolic and diastolic thrills could be palpated in addition to the signs mentioned before. He was readmitted to hospital several times with congestive cardiac failure, and first came under our observation in December, 1946, when he complained of considerable dyspnœa, palpitation and gastro-intestinal symptoms in the form of anorexia, nausea and vomiting.

He was a slightly cyanotic young man of apparently normal development. His whole body shook with each cardiac contraction, a definite vibration being imparted to the bed. The carotid and brachial arteries exhibited pulsation of large amplitude, the Corrigan pulse was regular in time and amplitude and a "pistol shot" sound could be heard over all peripheral arteries. The thorax was asymmetrical, due to bulging of the precordium, and the chest wall was drawn in with each systole. The apex beat was diffuse and heaving and of maximal amplitude in the eighth left intercostal space, six inches from the mid-line. Percussion revealed a zone of dulness extending one inch to the right of the sternum and up to the second right intercostal space. On auscultation, a *crescendo* presystolic murmur and a systolic murmur were heard at the mitral area and harsh systolic and diastolic murmurs at the aortic area. The cervical veins were engorged, the liver was palpable two inches below the right costal margin, but there was no œdema of the legs. Capillary pulsation was readily detected and the branches of the retinal arteries could be seen to pulsate. There were also pigmentary changes in the retina, but no papilloedema was present. The blood pressure was 180 millimetres of mercury, systolic, and no reading could be obtained for the diastolic pressure. Examination of the respiratory system revealed no abnormality other than diminished air entry at the base of the left lung with some scattered rhonchi.

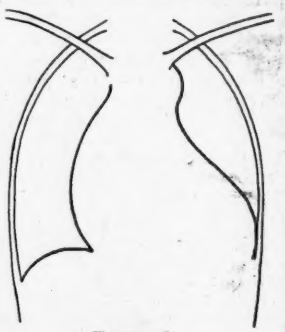

FIGURE I.

X-ray examination of the heart (Figure I) revealed considerable cardiac enlargement to the right and to the left, with widening of the aortic shadow. An electro-

cardiogram (Figure II) taken on December 10, 1946, showed regular sinus rhythm, left ventricular preponderance, widened and peaked *P* waves, a *P-R* interval of 0·22 second and evidence of delayed intraventricular

8900 per cubic millimetre, and the differential count was as follows: neutrophile cells 68%, lymphocytes 22%, monocytes 6%, eosinophile cells 3% and basophile cells 1%. The blood sedimentation rate was 7·5 millimetres in one

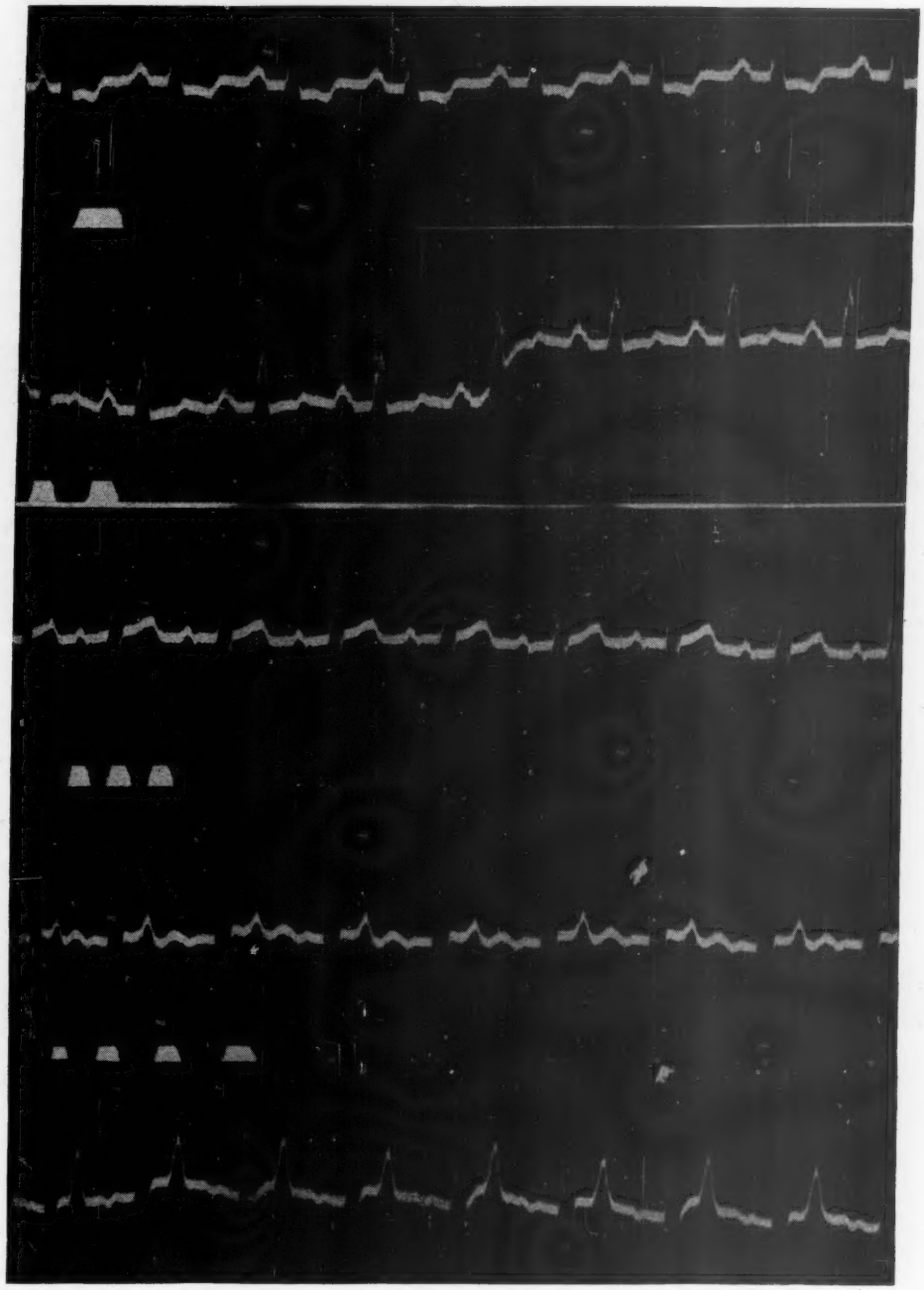

FIGURE II.

conduction in the prolonged *QRS* complexes. There were changes in the *ST* segments and *T* waves indicative of myocardial damage. A blood count on his admission to hospital gave the following information: the hæmoglobin value was 15·0 grammes *per centum*, the white blood cells numbered

hour. The Wassermann test and the Kline flocculation test both produced negative results.

He was treated with salicylates and full doses of digitalis. His condition improved somewhat; the size of his liver diminished, and the throbbing headaches which

had troubled the patient were alleviated. On January 16, 1947, he suddenly cried out, became deeply cyanotic and appeared to have an epileptiform seizure, during which he fell out of bed. When lifted back to bed he was found to be dead.

At the autopsy, performed by Dr. H. Mansell three hours later, the abnormalities were seen to be confined to the cardiovascular system. The heart (Figures III and IV) weighed 1500 grammes. There was enormous enlargement of both the right and left chambers. The greatest transverse diameter was 18·5 centimetres, the apex to base measurement being 20 centimetres. The parietal and visceral sections of the pericardium were firmly adherent. The right auricle, right ventricle and left auricle were considerably dilated. The left ventricle was greatly dilated and hypertrophied, the thickness of its wall being 2·5

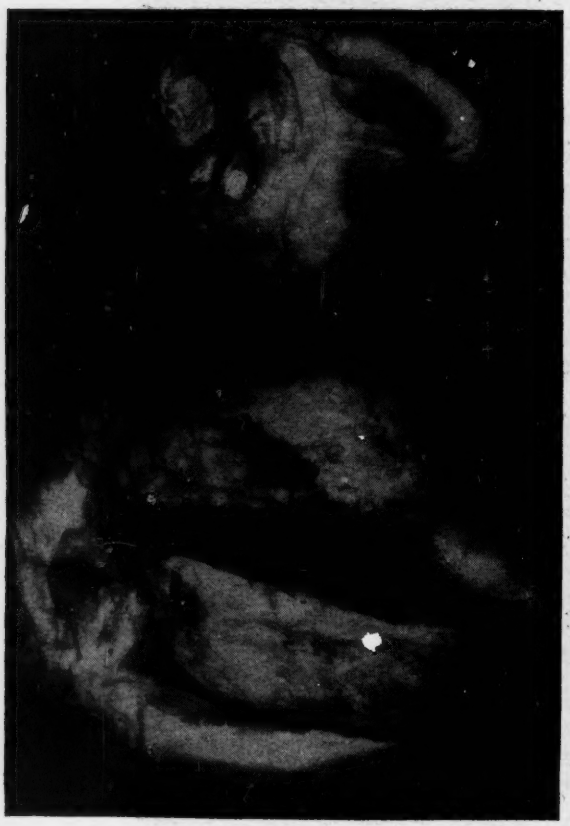

FIGURE III.
The patient's heart beside the normal heart of an adult male.

centimetres. The papillary muscles were greatly hypertrophied. The tricuspid valve showed some thickening of the free edges; the mitral valve was much thickened and contracted, and there were nodules of calcification in the cusps. The aortic valve was incompetent and its cusps were thickened and nodular. The ascending aorta was dilated; atheroma was absent. The coronary arteries were small in comparison with the degree of myocardial hypertrophy, but not occluded. The liver, spleen and kidneys showed evidence of passive venous congestion. There was no abnormality in the brain. Examination of microscopic sections of the heart muscle revealed evidence of rheumatic infection in the form of numerous Aschoff bodies.

Discussion.

Very large hearts are often termed *cor bovinum*, and it is of interest to note that the size of an average bullock's heart is quoted as being five and a half pounds (approximately 2500 grammes), which is larger than any known human heart. In 1854 Sedgewick[5] reported "A Case of Great Hypertrophy of the Heart". The heart was that of a woman, aged twenty-six years, who had suffered from "rheumatism and chalky gout"; it weighed three pounds two and a quarter ounces (1507 grammes), and showed thickening and nodularity of the mitral and aortic valves and pericardial adhesions. The author considered that "the causes contributing to the enormous enlargement of the heart were, firstly, valvular disease, secondly, adherent pericardium, and thirdly, non-appearance of the catamenia". In the same article Sedgewick mentions a heart which was in the museum of the Saint George's Hospital, London (Specimen E.11), which was said to weigh five pounds. This specimen has been lost, but if the statement is true it is the heaviest heart on record. The largest authenticated heart is that reported by Stokes[6] (1980 grammes), which was from a male, aged twenty-five years, with aortic insufficiency and pericardial thickening.

Altogether in the series reviewed by Golden and Brams only four hearts are listed that are larger than the one

FIGURE IV.
The patient's heart, showing (i) pericardial adhesions, (ii) the hypertrophied left ventricular wall, and (iii) the thickened and deformed mitral and aortic valves.

here reported. The biggest hearts all showed valvular disease with pericardial thickening, the largest hypertensive heart weighing 1200 grammes and being only seventeenth in that series. The commonly recognized causes of gross cardiac enlargement are valvular disease, pericarditis, hypertensive cardio-vascular disease and hypertension secondary to renal and other causes, coronary artery disease and congenital heart disease. In addition, considerable enlargement has been found in association with myxœdema, acromegaly, beriberi, von Gierke's disease and Fiedler's myocarditis. There remains a group constituting approximately 15% in which none of the above causes is operative. They have been termed "idiopathic cardiac hypertrophy" and have been studied particularly by Levy and Rousselot[3] and by Levy and Von Glahn.[3][4]

However, none of the hearts in this group so far reported has exceeded 1000 grammes.

Greatly enlarged hearts show a curious male preponderance. Of the 47 hearts weighing over 1000 grammes which constitute Golden and Brams's series, only two were from females.

The causes of the hypertrophy in the case reported are apparently valvular disease, particularly aortic insufficiency, and chronic adhesive pericarditis. The combination of these two factors seems to be of special importance, since it has been present in the vast majority of large hearts reported in the literature. A third factor probably operative is the relative coronary insufficiency secondary to the initial hypertrophy, which established a vicious cycle.

Sudden death, as distinct from gradual failure, is not uncommon with grossly enlarged hearts. This was the mode of exit of our patient and is strongly suggestive of an acute coronary insufficiency.

The main points of interest in the case are three. The first is that thanks to the medical records of the Royal Alexandra Hospital for Children and of the Royal Prince Alfred Hospital, we were able to follow the development of the valvular and pericardial lesions from the age of four to the patient's death at nineteen years. The second is the degree of cardiac hypertrophy in a youth of nineteen, and the third is the sudden death.

Summary.

A case is reported of a male, aged nineteen years, with gross cardiac hypertrophy (1500 grammes) due to rheumatic heart disease. The literature of gross cardiac hypertrophy is briefly reviewed, and its causes and mode of death are discussed.

Acknowledgements.

We wish to acknowledge our thanks to Professor C. G. Lambie and Dr. L. Dey for permission to report the case, to the Royal Alexandra Hospital for Children for making the records available, to Dr. G. F. S. Davies, pathologist of the Royal Prince Alfred Hospital, for the autopsy report, and to Mr. Woodward-Smith for the photographs.

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Reviews.

OCCUPATIONAL MEDICINE AND INDUSTRIAL HYGIENE.

INDUSTRIAL HEALTH is so wide in scope that no writer can expect to cover the whole field satisfactorily in a single volume. Rutherford T. Johnstone, the author of "Occupational Medicine and Industrial Hygiene", has already produced two books on this subject, one of which was written in collaboration with Dr. Alice Hamilton.[1] His recent work, although well produced and printed on excellent paper, shows an unevenness and lack of balance with regard to both the material described and the method of presentation. It contains many extracts from the writings of acknowledged authorities and a liberal amount of space is devoted to detailed case histories. An adequate list of references appears at the end of each chapter.

In view of the title, one hopes to find a discussion of at least some of those factors which, in the preface, the author admits as coming within the scope of occupational medicine, but in actual fact, the contents are almost entirely concerned with toxicological hazards and with specific industrial diseases, their prevention and control.

According to the table of contents, the book consists of four main parts. Part I, in 86 pages, deals with various miscellaneous aspects of industrial medicine, commencing with a short historical account and a brief comment on the future. Then follows a chapter on workmen's compensation, which contains a series of tables from the Division of Labour Standards of the United States Department of Labour, giving a considerable amount of information concerning the statutory provisions and benefits in the various States of America.

The other chapters in Part I refer to the need of scientific proof in medico-legal controversy, the functions of the industrial physician, the teaching of industrial medicine, and the diagnosis of occupational disease and laboratory procedures. Half of the brief chapter on the teaching of industrial medicine, which, in medical schools and universities abroad today, is assuming an increasingly prominent position, is devoted to a series of subject headings taken from a scheme prepared by the Committee on Medical Education of the American Association of Industrial Physicians and Surgeons.

Part II contains an account of chemical exposures in industry. It commences with a chapter on industrial solvents, and then follow chapters on the hydrocarbons, chlorinated naphthalenes and diphenyls, miscellaneous aliphatic compounds, halogens and halogen compounds, the oxides of nitrogen and DDT. Part II needs to be read with caution. In the chapter on industrial solvents, what is apparently intended to be a grouping of solvents is in reality a general classification of noxious gases and vapours; then there is an elementary discussion on structural formulæ, followed by a case history concerning the use of sodium hypochlorite and sodium bisulphate, and finally a long quotation from Henderson and Haggard's "Noxious Gases". The section on tetra-ethyl lead comes immediately after that on gasoline.

Further confusion between the inorganic and organic gases and vapours is evidenced by the inclusion of hydrogen sulphide and sulphur dioxide under the heading of "Miscellaneous Aliphatic Compounds", and the chapter on halogens and halogen compounds is sandwiched in between those on aliphatic and aromatic compounds. There is no reason why chlorinated hydrocarbons should not be included in the same chapter as halogenated hydrocarbons.

There are numerous errors, both in the text and in the formulæ, which it is not possible to detail individually, but the section entitled "Aliphatic Acids", which, in fact, deals exclusively with esters, is too noticeable to escape comment. One cannot avoid the thought that in the chemical section the author has lost control of his subject.

Part III describes the metals, commencing with lead, and generally is better than the chemical portion. In view of the importance of lead poisoning as an industrial disease, the brief section on occupational exposure should have been elaborated. The table which purports to show the approximate range of normal values for lead in body tissues has little meaning, because there is no indication as to whether the figures signify percentages or some other value such as milligrammes per 100 grammes. Presumably the latter is intended.

A quotation describing the technique for the determination of reticulocytes and stippled cells suggested by the Industrial Hygiene Division of the Illinois State Department of Health concludes with the very conservative statement that the normal stippled cell count is one to fifteen per 100,000 red cells. In this country it is not unusual to find up to 1000 stippled cells per million red cells in persons with no lead exposure and in whom there are no other abnormal blood changes.

In attempting to distinguish between lead absorption and lead intoxication, the author makes a rather cumbersome classification, and with regard to intestinal colic states: "Proper treatment of appendicitis or other abdominal pathology has often been delayed because colic was automatically considered to result from lead intoxication." The reverse is equally true, for persons have been subjected to

[1] "Occupational Medicine and Industrial Hygiene", by Rutherford T. Johnstone, A.B., M.D.; 1948. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9½" × 6", pp. 604, with many illustrations, some of them coloured. Price: 75s.

an operation for acute appendicitis when in actual fact they were suffering from an attack of lead colic.

Concerning the sequelæ of lead poisoning, the author refers to the work of other investigators to disprove any relationship between lead and arteriosclerosis and hypertension, and then without other comment dismisses the controversial subject of nephritis in relation to lead poisoning thus: "While albuminuria and polyuria may at times occur in the acute stage, there exists no evidence that excessive lead absorption causes any chronic renal damage."

With regard to treatment, he does not now attempt to "store lead" and then to carry out "de-leading", but gives the views of other investigators both for and against this practice. This chapter concludes with several case histories.

An account of the hazards from exposure to other metals follows that on lead, and several pages are devoted to beryllium, the material presented being largely quotations from the work of other investigators. Therapy by BAL (2,3-dimercaptopropanol) in relation to poisoning by arsenic and mercury is discussed. The section on metals concludes with a brief account of metal fume fever.

Part IV commences with a discussion of the dusts and pulmonary dust diseases and then follow chapters on tuberculosis and pneumonia in industry, the dermatoses, oxygen therapy, synthetics, an account of several industrial processes, and three chapters on general aspects of industrial hygiene dealing with subjects such as lighting, respiratory protection and protective devices generally, control of hazards, exhaust systems, spray booths, appraisal of hazards, dust collection and analysis.

Concerning the dusts, the most important chapter, of course, is that on silicosis, but this shows the same lack of balance as has been found elsewhere in the book. Under the heading of "Silica in Industries", over two pages are devoted to a discussion on silica bricks, asbestos, talc, mica, sodium silicate, silica gel, and lime-soda glass; and then in seven and a half lines are merely mentioned some of the industries or processes in which exposure to siliceous dust occurs. In this chapter there is a long quotation from the works of Gardner on the radiographic appearances in silicosis and discussion concerning the legal and medical aspects of "partial disability from silicosis", taken from the transactions of a meeting of the Industrial Hygiene Foundation.

There is a short section on the employability of the person with silicosis which will be of interest to those concerned with the future welfare of persons affected with dust disease. Aluminium therapy is briefly reviewed, and a short account of the principles of X-ray diffraction concludes the chapter on silicosis.

The description of anthraco-silicosis is mainly a quotation from a report by the United States Public Health Service following an investigation into the health of miners in the hard coal area of Pennsylvania; but on the subject of dust disease in coal miners there is no mention of the extensive investigation carried out in South Wales by the Medical Research Council of Britain a few years ago. Asbestosis, and possible effects from exposure to talc, bauxite, diatomaceous earth, tripoli and a group of inert dusts are also discussed.

The chapter on tuberculosis and pneumonia in industry is interesting and worth reading. It is mostly a summary of the opinions of others.

The account of the dermatoses is too brief to allow more than a mention of some of the industrial skin hazards, and the section entitled "Preventing Skin Infections" at the end of one of the chapters dealing with general industrial hygiene should be included in the chapter on skin diseases. It should also be revised, for under the heading of "Cutting Oils", solvents and their effect on the skin are briefly mentioned.

It is questionable why the chapter on synthetics was included in this book at all, as it is practically entirely technical. Similarly the chapter on industrial processes is mainly technical.

The material in the chapters on general aspects of industrial hygiene is generally satisfactory. Plant lighting is dealt with briefly, but there is very little about general factory ventilation or the effects of temperature, humidity and air movement on comfort, health and efficiency.

The final chapter concerns preemployment examinations. The appendix contains a list of some common trade name products and the chemicals present in them, and, although incomplete, is informative. There is also a table showing suggested maximum permissible concentrations of toxic substances, and another shows the lower explosion limits of inflammable vapours.

Taken as a whole, the book presents comparatively little that is new. General revision, rearrangement and correction of obvious mistakes are necessary. It would then be useful to general practitioners in industrial areas, or to part-time factory physicians, rather than to the consultant or specialist in industrial medicine, but it is no better than other text-books on the same subject.

THE MECHANISM OF ABDOMINAL PAIN.

V. J. KINSELLA is quoted in world literature for his work on abdominal pain and its localization, and it is fitting that there should be found on the shelves of clinicians, physiologists and anatomists a book which should be a permanent and standard record of this work.[1]

The first section of the book deals with the history of the development of his conception of the nervous system and in particular of the autonomic nervous system. A number of interesting plates depict the autonomic system as imagined by the ancients—Vesalius, Eustachius *et cetera*. In considering the anatomy of nerve endings, he points out how unreliable experiments on animals are in the technique of the investigation of pain. In pain experimentation in man a very definite effort to avoid unreliable results must be carried out, morphine and cocaine being avoided.

However, it is to the author's own work that the majority of readers will look. As early as 1928 he had evolved a "working theory" of pain and tenderness in viscera, which explained why, on clinical and radiological examination, tenderness corresponded with the visceral lesion and the tender point moved as the lesion moved (for example, a peptic ulcer niche as seen under the X-ray screen). His theory of pain did not divorce pain from tenderness. At operations (without morphine and under local anæsthesia) he tested the sensitivity to pain of the acutely inflamed appendix, and found that it was tender when squeezed over a considerable part of its length. By contrast no pain could be elicited by squeezing, cutting or clamping the healthy appendix or caecum. The caecum, whether healthy or affected by peritonitis, was insensitive to the above stimuli. He has since confirmed these observations on frequent occasions, and more recently Wolf and Wolff also confirmed the observations, finding that pain was felt only in the inflamed and œdematous stomach, not in the normal stomach.

Abdominal pain (described by Morley as "referred") from thoracic disease may be due to direct irritation of the trunk of the intercostal nerve by inflammation within the thorax, since at operation the diaphanous texture of the parietal pleura is easily demonstrated.

Of particular interest to medical practitioners is the section dealing with cutaneous hyperalgesia in association with visceral disease of the abdomen. He mentions that cutaneous hyperalgesia was first noticed by Hunter when he found tender areas of skin over his heart and down the medial aspect of his left arm during his attacks of *angina pectoris*. Head and Mackenzie considered cutaneous hyperalgesia to be a viscero-sensory reflex, and Mackenzie grouped it with muscular rigidity and tenderness in the deep parietal layers—stating that both were due to an irritable focus in the spinal cord brought about by impulses passing up from the viscus and causing an intensification of the normal stimuli passing to and from this particular part of the cord. Morley in 1931 attributed the parietal phenomena in visceral disease to a peritoneo-cutaneous reflex arising entirely from the parietal peritoneum. He said that referred pain and its accompaniments were never present in disease of the alimentary tract until that disease had caused direct irritation of the parietal peritoneum. Kinsella reports that, though others have been able to alter or abolish this cutaneous pain, tenderness and rigidity arising from visceral disease by local parietal anæsthesia, when he produced pain by squeezing an acutely inflamed appendix or ligating its mesentery, the visceral pain still appeared after the same stimulus was applied even when parietal anæsthesia was employed.

Pollock and Davis and Smalley and Wilkinson have suggested that true visceral pain is due to peripheral vascular or physico-chemical changes which stimulate the sensory cerebro-spinal nerves to produce pain. This theory, supported by Morley, was not confirmed when the author attempted to repeat the experiments of the relief of visceral

[1] "The Mechanism of Abdominal Pain", by V. J. Kinsella, M.B., Ch.M. (Sydney), F.R.C.S. (England), F.R.A.C.S.; 1948. Sydney and London: Angus and Robertson, Limited. 9½" × 6", pp. 246, with illustrations. Price: 32s. 6d.

pain by application of hot foments and hot packs to the areas of referred pain or cutaneous hyperalgesia. Further, he obtained inconstant readings of skin temperature (taken with a thermocouple) over areas of hyperalgesia and hypoalgesia. He found that ligation of the mesentery of the appendix always caused immediate and instantaneous epigastric or umbilical pain; if this was due to peripheral ischæmia there should have been a latent interval. From his experience of operations under local anæsthesia he concludes that cutaneous hyperalgesia is not a constant or essential part of visceral pain; at times there was even cutaneous hypoalgesia.

From a study of reflexes and transmissions of impulses in lower forms of life, for example, a sponge, it is found that in lieu of nerve cells there are "neuroid" transmissions of impulses, so that if a pin is stuck into the finger of a sponge at one and a half centimetres from the osculum, this aperture will close. There is a gradation from this "neuroid" form of nerve transmission (which is humoral in type) to a nerve net, and finally to the synaptic transmission in the higher vertebrate.

In the human, the neuro-humoral commotion spreads centrifugally and diffusely from a focus of injury or inflammation, inducing not only purposive reactions, but also reactions which have doubtful utility.

A biological review tends to make us look upon cutaneous hyperalgesia in visceral disease as a remnant of our phylogenetic past. In man there is an arborescent nervous system which includes somatic and splanchnic branches which are all intimately connected at their common base, the central nervous system. A diffuse response is still possible in man as in the primitive network of the lower animals. Impulses may still pass from one region to a neighbouring region, not only through the main trunk of the central nervous system, but also at the periphery. The impulses may be spread between adjoining neurons, either through a spread of electro-chemical changes in the common fluid matrix in which their endings lie, or by axon reflex. Within the nerve tree there are trigger-zones which set off primitive protective body-wall reflexes, represented in man by skin reflexes.

Further observations were made on patients who had colostomy "spurs" clamped. If the clamp had a narrow blade, and there was less than an inch of spur crushed, the procedure was almost painless. Piecemeal crushing of the spur was usually painless. There are no pain fibres in the greater omentum, and the mesentery is only more painful than the viscus it supplies because, whereas the nerves are scattered equally across the viscus, they are gathered in bundles of high concentration around the vascular tissues when they are in the mesentery.

The author illustrates his conception of the mechanism of visceral abdominal pain with a description of the processes underlying the pain of acute appendicitis. The initial lesion causes a stream of afferent impulses in the autonomic system and this leads to central abdominal pain, while at the same time sensitizing the whole nervous system and also affecting the emotional side of the personality. Next a localizable stimulus is applied to a part with powers of accurate localization—the inflammatory process spreads to the parietal tissues in the right iliac fossa.

The term "segmental" should not be applied to visceral pain, but should be reserved for those organs which partake of the segmental structure of the body and not therefore to pain from the gastro-intestinal tract.

Kinsella refers to "borrowed local signs" in the study of tenderness. He illustrates this with the experiments of Woollard and Carmichael on the testes. Testicular pain produced by pressure through the unanæsthetized scrotal wall is felt in the testis itself, but when the scrotal sensory nerves are blocked, the pain is still felt, but in the region which the testis traversed in its descent from the lumbar regions. He refers to the first pain felt in the testis as being "a borrowed local sign" which is also found with other organs.

Rigidity is considered to be in part due to the viscero-motor reflexes of Mackenzie and in part to the peritoneo-muscular reflexes of Morley, and the parietal stimulus is a more frequent and potent cause than the visceral.

Pain from the alimentary tract is typically central, deep, diffuse and usually felt at a higher level than the site of the lesion. This is a rule of superior location which he thinks may be correlated to man's upright posture.

In the stomach and intestines powerful contractions are an important cause of pain, while distension produces discomfort rather than pain.

When the parietal tissues over a tender viscus are stimulated by the examining finger from without or by spread of inflammation from within, there occurs a struggle for "local signature" between the visceral and parietal afferent impulses, the outcome of which will determine the site to which the patient refers the pain.

One might perhaps wish that in the publication of this book more attention could have been given to its balance, particularly in regard to the proportion of the diagrams, some of which appear to be too large and some too small for the detail to which they are drawn; and to the arrangement and standard of the diagrams themselves.

However, despite any possible criticism of its format and despite the fact that at times the discussion on pain tends to be philosophical, it is a most important book which will be generally welcomed.

RADIOLOGY OF BONES AND JOINTS.

A FURTHER edition of "The Radiology of Bones and Joints" by James F. Brailsford has been received from the publishers.[1] It is a far better volume than the third edition (1944), which was printed on indifferent paper and which did not allow of adequate reproduction of the illustrations. The present edition is much enlarged and contains over two hundred more illustrations. It is unusual to find such an important text-book as this written in the first person. However, the enormous amount of work which has been done by Dr. Brailsford justifies this procedure.

One serious drawback is the production of most of the illustrations in the "positive" rather than in the "negative" to which all radiologists are accustomed.

Fractures are treated only incidentally, as the author points out that they are fully dealt with in books on surgery and fractures. The various anatomical regions are first considered, and in the second part abnormalities and pathological conditions are discussed.

The section on the skeleton at birth and in the early years has been much enlarged and more graphically illustrated with descriptions of the radiographic appearances of premature infants, *fœtus in utero* and various deformities.

The ossification and development of the bones are minutely described, especially those of the hands and feet, and much valuable information is given of developmental and pathological conditions.

Supernumerary ossicles are detailed and the possibility of their being mistaken for fractures is stressed. Bipartite scaphoid and Kienbock's disease of the hand and foot receive particular attention, and the author points out how often these lesions are mistaken for traumatic conditions. The appearances met with in the limbs in rickets and the density of the metaphysis with cupping are diagnostic of the condition.

Osteoclastoma (giant cell tumour) shows early destruction of the cancellous bone and is endosteal in origin with expansion of the bone and thinning of the cortex—a foam-like appearance of the affected area is present.

Osteomyelitis, tuberculosis and syphilis of the bones are covered in detail and well illustrated. The author considers those irregular calcifications about the head of the humerus, such as calcification in the subacromial bursa and in the supraspinatus tendon, to be due to trauma. They appear some weeks after injury and may later be absorbed.

An unusual condition described is impaction of the head of the humerus against the rim of the glenoid in electric shock and convulsion therapy. The radiograph shows the head and glenoid apparently undamaged but without space for the articular cartilage and frequently a small consolidated shadow in the subarticular area, due to a depressed fragment of bone from the glenoid rim. The author frequently has found deformity of the head of the humerus in cases of recurrent dislocation of the shoulder. Several cases of "march" fracture have been noted in children as young as ten years. This is unusual, as it is generally looked on as an adult lesion. It may not be detected until several weeks after a minor injury and has sometimes been mistaken for sarcoma.

An important section deals with the anomalies and irregular displacements in the lumbo-sacral region. This should appeal particularly to those engaged in medico-legal work.

Spondylolisthesis is considered *in extenso* and the author describes it as a forward displacement of the lumbar region of the spine at the lumbo-sacral junction. This is permitted by stretching of the interarticular ligaments or by defects of

[1] "The Radiology of Bones and Joints", by James F. Brailsford, M.D., Ph.D., F.R.C.P., F.I.C.S.; Fourth Edition; 1948. London: J. and A. Churchill, Limited. 9½" × 7", pp. 778, with illustrations. Price: 63s.

the neural arches or abnormality of the fifth lumbar vertebral body. It is a gradual process and should not be confused with acute fracture, dislocations and other conditions due to injury. Kümmel's disease is a relative osteoporosis of a vertebra occurring two to three months after an injury, and later the bones condense. Rest in extension for three to six months leads to the disappearance of symptoms, although deformity will persist.

Part II of this work deals with abnormalities and pathological conditions generally. An interesting discussion occurs on monsters and deformities, with the author's opinion on the influence of heredity and environment on the production of these conditions. It is surprising to learn how often these conditions are hereditary. Many of these deformities can be produced experimentally (even double monsters and identical twins) by arresting growth at various stages of development. Dysplasias and dystrophies including *osteogenesis imperfecta*, achondroplasia, polycystic dysplasia *et cetera* are dealt with in detail.

The section on arthritis points out that in rheumatoid arthritis and rheumatic fever the sedimentation rate is increased, while in osteoarthritis this is not so.

An interesting description is given of bone changes occurring in alcaptonuria; they include destruction and irregular calcifications of the spine with splaying and bridging of the bodies. The shoulders and hips are also affected symmetrically in this disease with destruction of cartilage. Bone tumours are considered in conventional manner. The author points out that there is a confusion of ideas in regard to Ewing's tumour, and many cases of osteomyelitis, fibrocystic disease and ordinary carcinoma have been misreported as Ewing's tumour. This concluding chapter on bone tumours points out the great importance of careful examination of all tumours, and a description is given of the exhaustive manner in which the author carries out his examination; he insists that the radiologist should see the patient and the lesion before any conclusion is reached.

This work must be looked upon as the best yet published on bone and joint conditions and should be in the hands of every radiologist.

EMERGENCY SURGERY.

PART II of Hamilton Bailey's "Emergency Surgery" deals mainly with acute abdominal surgery.[1] It commences with an excellent chapter on perforated peptic ulcers in which it is pointed out that ulcers may perforate at any age so that one must beware of missing them in the elderly. The use of free omental grafts is described in the closure in cases of difficulty, but no mention is made of the easier method whereby the ulcer is closed by plugging it with intact omentum. The use of sulphanilamide powder in the abdominal cavity at the conclusion of the operation is inferior to the use of powdered penicillin. This may be followed by a post-operative course of penicillin administered systemically. As regards drainage in these cases, we have yet to be convinced that the placing of a tube in the pelvic cavity for forty-eight hours will prevent the later formation of a pelvic abscess. Non-operative treatment is mentioned, but more must be learned of its correct indications before it is routinely employed, as the results of early operation are now so good. Partial gastrectomy is mentioned rightly to be condemned as a routine measure. There must be very few indications for such a formidable operation in such an emergency. The chapter ends with a salutary warning that perforation of an ulcer does not cure it.

In a discussion of hæmatemesis due to peptic ulcer, ligation of the gastro-duodenal artery in continuity in the treatment of a prepyloric or duodenal ulcer is frowned upon, yet Figure 312 illustrating this manœuvre is still retained. Complications following gastric operations are well described, including acute dilatation of the stomach. It is a sign of the times that œsophageal anastomosis for congenital atresia of the œsophagus finds mention.

Chapter XXIV discusses the emergency surgery of the biliary tract. The use of morphine for the relief of biliary colic is condemned. Nevertheless, the intravenous injection of morphine relieves the pain very quickly and efficaciously. It is pleasing to see that Bailey writes that acute cholecystitis is not an indication for immediate operation. Should operation be necessary, however, as in fulminating conditions, it is rightly stated that the simplest measure is the best. The acutely inflamed, possibly gangrenous, gall-bladder is not the one for the beginner to attempt to remove—a cholecystostomy will suffice.

Obstructive jaundice is discussed, but greater stress could be laid on its differentiation from toxic jaundice. The latter can mimic the obstructive type even to being accompanied by severe pain, and, as is pointed out, operation is very dangerous for these patients. A few words on the modern biochemical tests which help in differentiating these conditions would not be out of place here. In the pre-operative treatment of a jaundiced patient, we now know that the giving of amino acids is as important as the giving of glucose in the prevention and treatment of liver damage. The technique of common bile duct exploration is described. If the duct contents are uninfected and the cause of the obstruction is an easily removed stone there is no need to drain the duct. The opening in the duct may be sutured and a tube left down to, but not into, the duct. In the next edition, no doubt, the use of penicillin and streptomycin in the treatment of pylephlebitis will be described.

Erythroblastosis fœtalis is briefly described, but no mention is made of its treatment with replacement transfusions.

Bowel obstruction is adequately discussed, and here it is interesting to note that Hamilton Bailey has given up the end-to-end method of bowel anastomosis in an emergency as described in the fifth edition (page 242). He now uses Seton-Pringle's method in its stead (Figure 469). Lahey's method of colostomy (transverse and left iliac) using two rods might well find a place in the chapter on large bowel obstruction (Chapter XXXI).

The section on paralytic ileus (page 337) will repay careful study and is an excellent argument for the school of rest in the treatment of this condition. Cases are described illustrating the harm done by giving bowel stimulants after operation either to prevent or to cure ileus. For this reason "Prostigmine" should not be given after anæsthetics for abdominal operation when curare has been used.

The author and the publishers of this book are to be congratulated once again. One looks forward to the next section.

[1] "Emergency Surgery", by Hamilton Bailey, F.R.C.S. (England), F.A.C.S., F.I.C.S., F.R.S.E.; Part II; Sixth Edition; 1948. Bristol: John Wright and Sons, Limited. London: Simpkin Marshall (1948), Limited. 10" × 6", pp. 188, with many illustrations, some of them coloured. Price: 21s.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Radiotherapy and Cancer", by A. G. C. Taylor, M.R.C.S., L.R.C.P., D.R., F.F.R., Joan Lassetter, M.B., Ch.B., D.R., and T. K. Morgan, M.B., M.R.C.S., D.M.R. (T.); 1948. London: H. K. Lewis and Company, Limited. 8½" × 5½", pp. 84. Price: 7s. 6d.

A statement of the beliefs and practice in radiotherapy and treatment of cancer of the radiotherapists working under the Wessex Radiotherapy Board.

"Preoperative and Postoperative Care of Surgical Patients", by Hugh C. Ilgenfritz, A.B., M.D., F.A.C.S., with a foreword by Urban Maes, M.D., D.Sc., F.A.C.S.; 1948. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 8½" × 5½", pp. 904, with illustrations. Price: 75s.

Attempts to present "the most useful knowledge we have at this time with respect to the proper preoperative and postoperative care of surgical atients".

"A Short Practice of Surgery", by Hamilton Bailey, F.R.C.S. (England), F.A.C.S., F.I.C.S., F.R.S.E., and R. J. McNeill Love, M.S. (London), F.R.C.S. (England), F.A.C.S., F.I.C.S.; Eighth Edition; Part II; 1948. London: H. K. Lewis and Company, Limited. 8½" × 5½", pp. 211, with illustrations, some of them coloured. Price: £2 12s. 6d. the set. Not sold separately.

The second part of a five-part work.

"Fever and the Regulation of Body Temperature", by Eugene F. Du Bois, M.D.; 1948. Springfield and Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications, Limited. 8½" × 5½", pp. 84, with illustrations. Price: 10s. 6d.

This is Publication Number 13 in the American Lecture Series, and a monograph in "American Lectures in Physiology".

"Directory of Australian Chemicals", issued under the authority of the Honorable John J. Dedman, M.P., Minister for Post-War Reconstruction; 1918. Melbourne: Commonwealth of Australia; Ministry of Post-War Reconstruction, Division of Industrial Development. 8" × 5½", pp. 54. Price: 5s.

Lists the source of supply of over 400 chemicals made and obtainable in Australia, including many of medical importance.

The Medical Journal of Australia

SATURDAY, NOVEMBER 20, 1948.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE WORLD MEDICAL ASSOCIATION.

THE General Assembly of the World Medical Association met for the first time at Paris in September, 1947. It will be remembered that this body is the successor of the *Association professionnelle internationale des médecins* and that it came into being because the British Medical Association in London wished to preserve and to utilize friendships formed during the stressful times of the last war. The first conference to that end was held at British Medical Association House under the chairmanship of Dr. J. A. Pridham in 1945. To this conference the French association was asked to send representatives and two attended. The result was that a further conference was called for September, 1946, and the Federal Council of the British Medical Association in Australia was one of the national bodies asked to send delegates. The proposals that were to be put to this conference will be found in THE MEDICAL JOURNAL OF AUSTRALIA of August 24, 1946, at page 277. Sir Hugh Lett, President of the British Medical Association, whose breadth of vision has been of inestimable value to the British Commonwealth of Nations, presided at the second conference, and thirty-three countries were represented. The conference decided that a new association of national medical associations should be formed with a broader basis and a wider scope than had been enjoyed by the "A.P.I.M.", as the original French association was called. The new body was named the "World Medical Association" and the "A.P.I.M." was subsequently dissolved. The joint honorary secretaries of the new organization were Dr. Charles Hill (secretary of the British Medical Association) and Dr. P. Cibrie (secretary of the *Confédération des syndicats médicaux français*). Dr. T. C. Routley, of Canada, was subsequently elected as chairman of council, and at a still later date Dr. Louis H. Bauer was appointed Secretary-General.

The first meeting of the World Medical Association was held at Paris in September, 1947, under the presidency of Professor Eugène Marquis, of Rennes, France. As may be learned from the *British Medical Journal* of September 27, 1947, the proceedings were somewhat difficult; but any doubts that may have been entertained about the future success of the association's meetings have disappeared with the success of the second meeting of the General Assembly held at Geneva in September last. The World Medical Association is a federation of the national medical associations of the world and is designed primarily for the interchange of information among them. Its objectives have been defined in the following terms:

(i) To promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available.
(ii) To maintain the honour and protect the interests of the medical profession.
(iii) To study and report on the professional problems which confront the medical profession in the different countries.
(iv) To organize an exchange of information on matters of interest to the medical profession.
(v) To establish relations with, and to present the views of the medical profession to, the World Health Organization, U.N.E.S.C.O., and other appropriate bodies.
(vi) To assist all peoples of the world to attain the highest possible level of health.
(vii) To promote world peace.

With these objectives no one can find fault. Although this attempt at international cooperation is being made in the field of medicine, it must be realized that politics may have a grave effect. This is shown by the fact that the president-elect of the association for 1948, Dr. Jarvslav Stuchlik, of Czechoslovakia, could not assume office for the reason that his national medical association had been disbanded as a result of political changes in his native country. This is one of the reasons why every possible effort must be made to promote knowledge and understanding among medical men and women, and indeed among scientifically minded persons, of every nation. Even if governmental decree or other type of action can isolate and prevent corporate communion between medical persons of neighbouring States, nothing can kill the spirit of inquiry and the will to bring relief and healing to the sick once these have taken possession of a man. They burn like a consuming fire and must in the end break any bounds that may be put to them. When we realize that this World Medical Association is an attempt to spread the spirit of medicine in every country we shall need no urging to make it as effective as we can.

At the Geneva meeting last September Professor Marquis was again president and the agenda covered a wide field. A good deal of publicity has been given in the daily Press to a new form of oath that was drafted on the lines of the Hippocratic oath. This matter arose from the consideration of a document dealing with war crimes. The general assembly, after considering the evidence, solemnly condemned the crimes and inhumanity of German doctors. It was considered that the reclamation of the German medical profession could not be effective until German doctors themselves acknowledged the iniquity of their conduct and declared their determination to return to the time-honoured traditions and ideals of medical practice. The general assembly of the World Medical Association offered to the German profession for endorsement and signature a statement in which guilt for crimes was acknowledged, regrets for past acts were expressed and a solemn undertaking was given never again to participate in or permit a betrayal of medicine. The declaration was to be signed by representatives of the organized German medical profession. It was, however, pointed out that the German medical profession had as yet no organized body

to speak on its behalf. Further, the signing of a declaration was only the first step which the German medical profession had to take to regain the confidence of the rest of the world. It was necessary for German doctors, and indeed for the doctors of every country in which there was a tendency for political and social doctrines to develop at the expense of individual responsibility, to bear constantly in mind the moral aspect of medical research and practice. It was at this stage that a discussion on the Hippocratic oath was introduced. Reference was made to the fact that in many places the Hippocratic oath was not used or that its use had become a mere formality. For this reason the draft of an oath was submitted to the assembly. It was expressly described as a suggested form for use or for modification where the Hippocratic oath was not used or was thought unsuitable. The oath as adopted was as follows:

I solemnly pledge myself to consecrate my life to the service of humanity.
I will give to my teachers the respect and gratitude which are their due.
I will practise my profession with conscience and dignity.
The health of my patient will be my first consideration.
I will respect the secrets which are confided in me.
I will maintain by all means in my power the honour and the noble traditions of the medical profession.
My colleagues will be my brothers.
I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient.
I will maintain the utmost respect for human life, from the time of conception; even under threat I will not use my medical knowledge contrary to the laws of humanity.
I make these promises solemnly, freely and upon my honour.

The assembly also determined after the receipt of replies to a *questionnaire* to draw up a code of ethics which could be adopted by countries which had no code. It was pointed out that in no code at present was reference made to the actions of a medical practitioner in a foreign country. There appeared to be no reason why a practitioner in a foreign country should not conduct himself in the same way as he would in his own country. Clauses to cover this type of activity were drafted and accepted. A long discussion took place on social security. It was pointed out that in many countries there was a non-medical group of persons who sought to bring about the regimentation of the medical profession under State control, making its members eventually full-time salaried servants of the State. There was rarely any disposition on the part of these persons to consult the medical profession on the problems presented. One of the best speeches on this subject was made by a representative of Eire, who declared that whenever the State took over a responsibility from the individual it dealt a blow at the family and so at the roots of humanity and civilization. There was a sacrifice of human freedom with every new acceptance of responsibility by the State. It was said that a heaven was to be created in society. In this society the name of God Almighty had no place and personal salvation depended, not on religion, but on the State. "In this heaven created by man", he declared, "the guardian angels will become the secret police." It was resolved that after facts had been obtained by *questionnaire* a survey of the status of social security in the different countries should be made. It was also determined that the Secretary-General should be kept informed of changes that occurred in the several countries. A permanent committee on social security is to be established. After prolonged discussion it was resolved that in order to ensure that the people received the best medical care as part of their social security, in order to ensure the progress of medicine, and in order to protect the free practice of medicine, the following principles should govern the provision of social security:

1. Freedom of choice of physician by the patient and freedom of the patient to change his physician.
2. Freedom of the doctor to choose his patient, except in cases of urgency.
3. No intervention of a third party between the physician and the patient.
4. Freedom of the physician to choose his location and type of practice.
5. No restriction of necessary medication or mode of treatment by the physician, except in cases of abuse.
6. When a medical service is subject to control, the control should be in the hands of physicians.
7. Appropriate representation of the medical profession in every official body dealing with social security and the provision of medical care.
8. It is not in the public interest that medical practitioners giving medical care should be full-time servants of the Government.
9. Remuneration of medical services ought not to depend directly on the financial condition of the insurance organization.
10. Any social security or insurance plan must be open to the participation of any licensed physician, and no physician should be compelled to participate if he does not wish to do so.
11. A compulsory health scheme should cover only those who cannot pay for medical care.
12. There should be no exploitation of the physician, of the physician's services, or of the public by any person or organization.

Readers of this journal who are in the habit of reading the reports of the meetings of the Federal Council of the British Medical Association in Australia will recognize the familiar ring about many of these clauses.

Among the other matters discussed at the meeting were such subjects as the advertisement of secret remedies and apparatus, unqualified medical practice and post-graduate medical education. The World Medical Association is to publish its own *Bulletin*. Dr. Morris Fishbein is to be first editor and he will have the collaboration of editors of medical journals in the different countries. It remains only to state that the President-Elect of the Association is Dr. Charles Hill, and that the meeting of 1949 will be held in London.

Current Comment.

THE HAZARDOUS QUEST OF BEAUTY.

FROM time to time some of the hazards associated with the quest for beauty have received publicity and their serious nature has been shouted from the housetops. Yet people still court disaster by letting unskilled experts eradicate their moles (a curious change of heart, incidentally, from the days when moles were "beauty spots" and were stuck onto the faces of those who lacked them). The uncontrolled consumption of thyreoid extract still goes on as a means of limiting a too exuberantly spreading figure. Young women starve themselves for the same purpose and lower their resistance to such dangers as tuberculosis. Skin beauty preparations are sold which contain sex hormones capable of absorption through the skin with quite unpredictable results. Shoes that do not violate the normal foot are slow to find favour. Cheilitis has followed the use of lipstick, and dermatitis has resulted from the use of certain hair dyes and also from nail varnish. In a recent report S. J. Fanberg and H. Sharlit[1] have

[1] *The Journal of the American Medical Association*, June 26, 1948.

described two cases of ill effects from the application of a nail cosmetic intended to produce a better adhesion of enamel to the nail substance. Within three days of the use of this cosmetic the tips of the fingers became tender and slightly swollen; then followed changes in all fingers, leading to subungual hyperkeratosis and the beginning in some nails of onycholysis. Attempted removal of the enamel even within a week of its application disclosed a permanent staining of the nail. The nature of the cosmetic and the mode of its action have not yet been determined. A good deal has been written about the possibility of injury to the hair and scalp associated with the "cold" method of permanent hair-waving, but, as is pointed out by L. Goldman, L. Mason and W. McDaniel,[1] the position is not clear. They quote a description by Reed, Humoller and DenBeste of the two main types of hair-waving procedure. Briefly, in the "hot" method,

> the hair is treated with an alkaline sulphide preparation and wrapped around a rod of small diameter. Heat is then applied to change the configuration of the hair from a straight to a curled state.

In the "cold" method

> the hair is also wrapped around a rod of suitable diameter either prior to or after treatment with an alkaline reducing agent—usually thioglycolate. In contra-distinction to the hot permanent waving method, no external heat is applied. After satisfactory undulation of the hair is obtained, the wave is fixed by application of a suitable oxidizing agent.

It is this method involving the use of ammonium thioglycolate that has been questioned. Goldman, Mason and McDaniel, after reviewing the literature on the subject, describe their own experiments on 149 women patients with apparently normal skin and scalp. They appear to have established that ammonium thioglycolate is a mild irritant of the skin and that suitable precautions must be taken to prevent its setting up an irritant dermatitis; eczematous hypersensitivity may occur, though rarely, in association with the "cold" waving process, but this is thought to be due to other materials used in the process. It is rather reassuring to notice that the reported frequency of reactions is less than 0·1%, and no complete investigation has yet been made to assess the importance of the many factors additional to ammonium thioglycolate itself. A series of prophylactic measures are recommended which should, if observed, be effective, although little hope is held out for the protection of the hands of beauty parlour operators, which are affected with reactions "more frequent by far, more severe and more extensive than those which occur among patrons of the beauty parlors", as, it is stated, they refuse to wear gloves, which are the most important means of protection. Apart from the possibility of dermatitis, which is quite limited, "cold" waving affects the hair adversely, producing splitting, cracking and desiccation and sometimes changes in colour. No doubt, however, many will still feel that in all this the game is still worth the candle.

INFECTIOUS MONONUCLEOSIS.

THE disease once known as glandular fever and now as infectious mononucleosis is of particular interest as it reflects in its literature the progress of medical diagnosis from purely anatomical objective features through the awakened study of pathology of the living and the routine application of laboratory examinations to the realization of a still expanding affinity with the great group of diseases due to virus infections. A series of articles on the subject in *Blood* is headed by an historical account by Sir Henry Tidy.[2] After Pfeiffer described what he called glandular fever numbers of epidemics were reported in different countries, but the clinical diagnosis was not firmly enough established to enable the diagnosis to be made of sporadic cases. This weakness of the diagnostic side of medicine is apparent in quite a number of other diseases; perhaps it adds to the interest of the practitioner's life, though it makes undue calls on his judgement. Tidy remarks how strange it is that investigation of the blood was so long delayed in a disease affecting the lymph glands and often also the spleen. To be sure, Burns described the lymphocytosis in 1908, but for the next twelve years his observations were unheeded. In 1920 the disease was renamed by Sprunt and Evans, who were unaware that Pfeiffer had described it under another name. Shortly afterwards recognition of the usual features became general, and the possibility of nervous complications was suggested. Tidy points out how unfortunate is this difference in names; even now both are used in different countries. Continental writers were led astray by a notion that the lymphocytosis was due to a peculiarity of the individual patient in reacting to infections, instead of being a feature of the disease. They embarked on barren arguments about the true nature of the cells which increased so remarkably in the blood, and the real significance of "monocytic angina" was largely overlooked until it was marked out clearly from diphtheria as a clinical syndrome. This condition is now recognized as merely an anginose form of the infection whose external manifestation is more usually that of glandular fever, and whose hæmatological picture is that of a mononucleosis. The epidemics which have occurred in England, America and other countries from time to time have shown varying features. This is only what we expect of epidemic disease, though such mutations and temporary changes are misleading in diagnosis and cause fruitless arguments at times. Tidy points out that four clinical types of the disease are now recognized, the original glandular type of Pfeiffer in children, infectious mononucleosis in young people with a longer but mild course and little glandular swelling, monocytic angina, and long febrile types with late glandular changes. The last of these is often mistaken for typhoid or other continued fever. The blood changes need not be further referred to here, for they are well known. Two other features merit special mention in this historical account. One is the very curious phenomenon of heterophile agglutination discovered by Paul and Bunnell, which has given us a test known by their name. The other is the increasing recognition of encephalitis and other neurological complications. The clinical pictures, as Tidy remarks, are varied and bizarre. Since there is no constant type it appears likely that this complication has been thought to be due to other causes in the past, and not recognized as a form of infectious mononucleosis. There is also the possibility that these forms of encephalitis illustrate the growing tendency of various infective agents to attack the nervous system, unless there is some fallacy in this. The association of benign lymphocytic meningitis with glandular enlargement and mononucleosis suggests also other affinities with meningeal virus disease. Jaundice also seems to have increased in frequency of recent years. Tidy's own personal experience is of value here, for he pointed out the occasional presence of jaundice in 1935. Here again infective hepatitis may be confused with mononucleosis, as the onset of the latter may be indistinguishable from virus type hepatitis. R. P. Custer and E. B. Smith contribute a well-illustrated article on the pathology of infectious mononucleosis to the same journal. They describe a few conditions apparently not recognized by clinicians, and present a full account of the tissue changes based on studies of nine autopsies and many biopsies. They think that the cells infiltrating tissues are metaplastic in nature, formed *in situ* from cells of the reticulo-endothelial system. Another brief article has been written by R. Isaacs, who describes a chronic form of infectious mononucleosis persisting in persons who have had an attack of the disease. This author claims that characteristic cells are present in the blood and that symptoms of weakness and fever are associated with lowered blood pressure and blood sugar content. This condition suggests adrenal insufficiency, and Isaacs claims good results from the use of cortical extract. The history of the growth of knowledge of this disease contains some morals. It shows the dangers of names, and while it is admitted that we cannot follow the example of an artist who, feeling the inadequacy of the usual titles, labelled his picture with twenty lines from Tennyson, we should not be bound by a mere name.

[1] *The Journal of the American Medical Association*, May 22, 1948.
[2] *Blood*, August, 1948.

Abstracts from Medical Literature.

MEDICINE.

Vascular Responses to Ligation of the Inferior Vena Cava.

C. THORPE RAY AND GEORGE BURCH (*Archives of Internal Medicine*, November, 1947) discuss vascular responses in man to ligation of the inferior *vena cava*. The observations made were limited to twelve patients, all women, in whom the inferior *vena cava* had been ligated in the treatment of pelvic thrombophlebitis. Some of the patients were observed for four and a half years. Clinical evidence revealed normal function of the lower extremities, and normal texture, temperature, colour and response to sensation of the skin. The veins of the feet and legs were small, and varicosities were limited to minute veins of the skin. The abdominal veins were dilated and the blood flow was cephalad. Œdema occurred in all but two patients, and disappeared early in convalescence in all except two in whom the œdema was present for eight months. Studies were made of the venous pressure, of the variations in volume of the tips of fingers and toes by plethysmogram, of the rate of water loss from the skin surface, of the plasma proteins, of the subcutaneous tissue pressure, and of œdema of the tissues. Clinical and physiological observations failed to reveal any detrimental effect from ligation of the inferior *vena cava*; the circulatory adjustments were adequate, although not all the compensatory mechanisms are clearly understood. It is because of such adjustments of the circulation that the surgeon can ligate the inferior *vena cava*, with the resultant sustained venous hypertension, without producing demonstrable detrimental effect. However, the ligation must be below the entrance of the renal veins.

Artificial Modification of Fat Absorption.

C. M. JONES *et alii* (*Annals of Internal Medicine*, July, 1948) have administered an emulsifying agent, polyoxyethylene sorbitan monooleate, to persons suffering from steatorrhœa, with a view to reducing the size of the fat globules in the intestine and thus presenting a larger surface area of fat to the villi and improving absorption. The results appeared to be helpful.

Vagotomy in the Treatment of Peptic Ulcer.

C. F. W. ILLINGWORTH AND A. W. KAY (*Edinburgh Medical Journal*, October, 1947) discuss vagotomy in the treatment of peptic ulcer and present an analysis of the results of treatment of six patients. They state that the two main objectives in the treatment of peptic ulcer, whether by medical or surgical means, are to reduce the acidity of the gastric juice and to put the ulcerated part at rest. Since vagus stimulation is known to result in the secretion of the "appetite" juice, and to enhance the motor activity of the stomach, it is presumed as possible that these objectives may be attained by division of the vagus nerves. The operation of vagotomy by the abdominal approach was performed by the authors on six patients suffering from duodenal ulcer. The immediate effect was to relieve all symptoms; but pain recurred in one case within three months, in two cases after eighteen months, and in a fourth case after twenty-seven months. Recurrence of pain is attributed to regeneration of the cut vagus nerves. Vagotomy had a pronounced effect in reducing the gastric motility as measured by means of a balloon in the stomach connected with a tambour recording on a kymograph drum. It had no effect on the acid concentration of the gastric juice. The early results of the operation were promising, but the end-results were poor, and the authors are of the opinion that there is no place for vagotomy by the abdominal route in the treatment of peptic ulcer.

Influenza Virus Vaccine.

A. C. VAN RAVENSWAAY (*The Journal of the American Medical Association*, February 14, 1948) discusses the prophylactic use of influenza virus vaccine. In the United States of America vaccines made from formaldehyde-inactivated strains of influenza virus, types A and B, have been widely used for prophylaxis in the army and by civilians. These vaccines have been reported to give protection in certain epidemics. However, the author reports an instance in which 237 out of 527 cadets were vaccinated with one millilitre of influenza vaccine, and subsequently after two months 48 of these cadets developed a disease of sudden onset with fever, general pains and a rather severe constitutional disturbance, regarded as typical virus influenza. Samples of blood collected during the febrile period from five subjects established the ætiology of the outbreak as influenza A virus. Various explanations of the failure of the vaccine to protect the subjects are given. Some say that the vaccine protects for only six weeks, others that the strength and proportion of A and B strains in the vaccine were unsuitable.

Emetine Toxicity.

G. KLATSKIN AND H. FRIEDMAN (*Annals of Internal Medicine*, May, 1948) have recorded observations on the toxicity of emetine in man. Ninety-four patients were treated with emetine for mild or severe amœbiasis. Daily doses of one grain were injected subcutaneously. Amounts of from 10 to 27 grains of emetine were given. In seven patients treatment had to be suspended on account of toxic effects. The authors state that in 91% of cases evidence of toxicity was noted at some time during treatment. They include pain at the site of injection, diarrhœa and weakness as signs of toxicity. They point out that their assessment of the frequency of toxic effects is entirely at variance with the published experiences of others, who find few toxic effects. They mention nausea, electrocardiographic changes, fall in blood pressure and precordial pain as common toxic effects and state that these toxic symptoms are often transient and subside in spite of further drug administration. Treatment was suspended on account of precordial pain in three cases, persistent electrocardiographic changes in two, neuritis in one, nausea and vomiting in one, and tremors and weakness in seven. Prolongation of the *P-R* interval up to 0·24 second was noted in some cases and inversion of *T* waves in one or more leads was observed in fifteen. In no case did the electrocardiographic changes persist for long after treatment was suspended. Bradycardia and tachycardia were recorded in several cases. The authors discuss the toxic effects of emetine in animals as well as in man. In conclusion they state that relatively large doses of emetine can be given with safety, if interrupted by rest periods.

Paroxysmal Hypertension in Spinal-Cord Injuries.

C. E. THOMPSON AND A. C. WITHAM (*The New England Journal of Medicine*, August 19, 1948) state that physicians who have spent much time with paraplegic patients have noted that fluctuations in blood pressure are not uncommon. They themselves have found these fluctuations to be large and to be an integral part of a sympathetic response to various stimuli, principally vesical and rectal in origin. In patients in whom the lesion causing paraplegia is above the sixth thoracic segment, the fluctuations in blood pressure may exceed 100 millimetres of mercury and be accompanied by severe headache. The occurrence of headache should immediately direct attention to the state of the bladder and bowels, so that they may be relieved if found distended. Distension of the bladder may cause such a rise in blood pressure during a long orthopædic or plastic operation in a paraplegic patient as to give the surgeon trouble in securing hæmostasis: sometimes it may even lead to a post-operative stroke. Tetraethyl ammonium chloride has been used with success to block the sympathetic reflex concerned in these events.

Paroxysmal Ventricular Tachycardia.

G. R. HERRMANN AND M. R. HEJTMANCIK (*Annals of Internal Medicine*, May, 1948) report a clinical and electrocardiographic study of paroxysmal ventricular tachycardia and discuss its management. They state that it is a rare disorder which most often occurs in association with coronary occlusion or sclerosis. Digitalis is said to bring it on sometimes in damaged hearts. The electrocardiogram shows a broad *QRS* complex and an independent usually slower atrial rhythm. The *P* waves may be difficult to demonstrate in the arm leads and may be seen better in precordial leads. Atrial tachycardia with bundle branch block may be confusing. Twenty cases were studied, the experience of eighteen years. The heart rate varied between 110 and 220 per minute. The duration of the paroxysms was from two hours to six days. Quinidine treatment given orally, 0·6 to 5·2 grammes in twenty-four hours, was accompanied by reversion to normal rhythm in ten instances. In four of these the patients died in a week of the associated myocardial lesion. Twelve patients were maintained on quinidine, given orally in doses of 0·6 to 1·0 gramme daily, for up to six years in one case. The value of quinidine is variously assessed. Some hold that it may cause death due to atrial fibrillation causing embolism, or to cardiac standstill due to its depressant action, or to its causing ventricular fibrillation itself. It may be dangerous if the *QRS* complex is prolonged more than 25%. Intravenous administration of quinidine is advocated by some experienced physicians in certain cases,

3·5 grammes of quinidine sulphate in 500 millilitres of 5% glucose solution being given intravenously at the rate of 100 to 120 millilitres per hour. After the paroxysm the administration of quinidine should be continued for days or weeks in doses of 0·2 gramme every six hours or larger doses. The authors state that subcutaneous or intravenous administration of morphine in doses of 10 to 40 milligrammes repeated in a half to two hours has been favourably reported on by Sabathie, of Argentina.

Polythene Tubing for Intravenous Infusions.

J. W. FARQUHAR AND I. C. LEWIS (*The Lancet*, August 14, 1948) give a short account of the transparent plastic substance polythene, which is a solid composed of five hundred or more units of ethylene linked together. It is smooth, highly flexible and elastic, innocuous to living tissue and easily sterilized. It has been used in surgery for anastomosis of the bile duct, trachea, peripheral nerves and colon, for replacement and repair of the *dura mater* and for ventriculostomy. Fine tubes made from polythene have been used to catheterize the heart and, in the newborn, the umbilical vein. The authors state that the average cost in Scotland of tubing with bores of 0·5, 1·0 and 2·0 millimetres is two shillings for ten yards. They have used the 0·5 and 1·0 millimetre tubing with great advantage for intravenous infusions in infants. They cut a bevel at the end of the tubing with scissors. It slips easily into the cut vein and is passed up some inches before a retaining ligature is tied. Three or four turns of the tubing are taken around the limb so that any unexpected violent tug will not pull the end out of the vein; splints are thus unnecessary.

The Collateral Circulation of the Heart.

M. PRINZMETAL, B. SIMKIN *et alii* (*American Heart Journal*, March, 1947) have employed coronary perfusion of normal human hearts with radioactive erythrocytes and with glass spheres, some six millions of which go to the gramme, and state that they have demonstrated intercoronary anastomoses of arteriolar dimensions, large arteriovenous anastomoses (capable of passing spheres 140μ in diameter) and large communications between the coronary arteries and the ventricular cavities.

Pulmonary Embolism.

SIMON S. LEOPOLD (*Annals of Internal Medicine*, January, 1948) surveys the ætiology, the clinical recognition, the prophylaxis, and the treatment of pulmonary embolism as an introduction to the presentation of a case report of this complaint. He states that emboli may reach the lungs either from thrombi formed in the right side of the heart or from those having their origin in the systemic veins, particularly those of the lower limbs. Thrombosis of the leg veins may also result from thrombo-phlebitis complicating certain infections, notably typhoid fever and pneumonia. Thrombosis of the leg veins occurring post-operatively is a very frequent cause of pulmonary embolism. It is usually possible to prevent this potential catastrophe either by prophylactic bilateral ligation of the femoral veins in selected cases, or by prompt interruption of these veins at the first indication of bland thrombosis manifested either locally or by sublethal episodes of pulmonary infarction and embolism. The case history of the patient discussed by the author shows that there were repeated attacks of pulmonary embolism during a consecutive period of almost seven months; it was only in the last such episode that the correct diagnosis was made, and then only because slight discomfort in the left thigh led to the discovery of palpable thrombosis in the left femoral vein. No cause for this thrombosis was apparent. Operative removal of the common femoral vein and its contained thrombus resulted in prompt relief of symptoms. There were no further episodes of pulmonary embolism five months after operation. The author states that the level of clinical suspicion should be raised regarding the presence of bland thrombosis in all instances of atypical pulmonary disease exhibiting those symptoms and physical signs which suggests the possibility of pulmonary embolism.

Cerebral Arteriography.

I. S. WECHSLER AND S. W. GROSS (*The Journal of the American Medical Association*, February 21, 1948) discuss cerebral arteriography in subarachnoid hæmorrhage. Thorotrast (colloidal thorium dioxide) is a radioactive substance and its deleterious effects persist because it is not excreted. Diotrast is not radioactive, is rapidly excreted and is harmless. The authors report ten cases of subarachnoid hæmorrhage in which arteriography was performed in the acute or subacute phase. The injection was made on the right or left side according to the preponderance of symptoms. In six cases the subarachnoid hæmorrhage was shown to be associated with vascular anomalies and not with cerebral aneurysms. In several cases there had been a recurrence of subarachnoid hæmorrhage on more than one occasion. One patient had six separate attacks of subarachnoid hæmorrhage. In four cases the common carotid artery was ligated in order to prevent recurrence. In two cases death ensued, but two recoveries were recorded without recurrence of symptoms.

The Shoulder-Hand Syndrome.

O. STEINBROCKER *et alii* (*Annals of Internal Medicine*, July, 1948) state that a number of seemingly different disorders, frequently involving the upper limb, appear to be closely related. These include causalgia, post-traumatic osteoporosis (of Sudeck), painful disability of the shoulder following coronary occlusion, post-infarctional sclerodactyly, palmar and digital contractures, the swollen atrophic hand associated with cervical osteoarthritis, certain changes in the paretic limbs of hemiplegics and an idiopathic "shoulder-hand syndrome". It is stated that, although their ætiology or precipitating factor varies, these conditions exhibit clinical features which are quite similar, and the underlying mechanism seems to be identical, a reflex neurovascular dystrophy. The clinical features consist of a combination of painful disability of the shoulder with pain and swelling in the hand on the same side. Trophic changes in the hand may follow. The syndrome may be incomplete. Variations in the clinical features and in the severity of the symptoms probably are due to different degrees of reflex neurovascular and motor reaction. The authors postulate to explain the observed facts the existence of a vicious circle, mediated through an internuncial pool of active stimuli in the spinal cord, provoked and maintained by the primary precipitating condition. Treatment by sympathetic interruption (by stellate or upper thoracic ganglial block or surgery) is effective for a great number of ætiological varieties of the shoulder-hand syndrome, thus tending to confirm the common identity of the underlying mechanism.

The Prognosis of Patent Ductus Arteriosus.

J. BENN (*British Heart Journal*, October, 1947) describes a series of 46 patients with patent *ductus arteriosus*, 30 of whom were referred from a school clinic. In this group symptoms were few and rarely serious. In two cases the classical murmur disappeared during the observation period, the average observation period for the series being some eight years. In three cases precordial thrills vanished as the patient grew older. Body weight was significantly below normal. The author suggests that operation should be undertaken in a limited number of cases, for the operative mortality is still high, possibly as high as or higher than the risk of bacterial endocarditis or congestive heart failure. He gives, as the indications for surgery, bacterial endocarditis, recovered bacterial endocarditis, cardiac embarrassment or poor physique.

Thrombosis Complicating Internal Diseases.

S. KALLNER (*Archives of Internal Medicine*, February, 1948) states that when the temperature does not return to normal after pneumonia and when pleural effusion or septic complication is not present, the presence of a complicating deep thrombosis should be suspected; similarly when pneumonia is resistant to sulphonamide compounds and penicillin. Treatment with heparin and dicoumarol has produced rapid recovery in such cases in the author's experience. Heparin has also been used successfully by the author in a case of anuria caused by a hæmolytic reaction after blood transfusion: two hours after the inception of heparin treatment the anuria cleared up and long fibrin casts of renal tubules were passed in the urine.

Coronary Atherosclerosis and Hypercholesterolæmia.

E. P. BOAS *et alii* (*American Heart Journal*, April, 1948) found the serum cholesterol level to be greater than 300 milligrammes per 100 millilitres in 78 of 122 patients with proved coronary atherosclerosis whose disease began before the age of fifty years. *Arcus senilis* was exhibited by 22 of these patients and xanthelasma by twelve. Hypercholesterolæmia was found in all or most of the siblings in about one-third of fifty families of patients with coronary atherosclerosis. The authors suggest that altered cholesterol metabolism may be the common denominator in most patients who have coronary arterial disease and *arcus senilis* or coronary arterial disease and xanthelasma.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at Royal Prince Alfred Hospital, Camperdown, on May 20, 1948. The meeting took the form of a series of clinical demonstrations by members of the honorary medical staff of the hospital.

Aneurysm of the Innominate Artery.

DR. KEMPSON MADDOX presented an exhibit concerned with aneurysm of the innominate artery. He explained that it was an uncommon lesion, almost invariably syphilitic in origin. In one series of 1147 cases of aneurysm of the major vessels collected in New Orleans, only ten had been examples of sole innominate aneurysm. In 1937 Rundle was able to find only 25 examples in the literature of sole innominate aneurysm, in 17 of which ligation had been attempted. Dr. Maddox stated that the first successful ligation was performed in New York in 1818 by Valentine Mott. Surgical mortality had been reduced from 81% between 1880 and 1904 to 24% between 1904 and 1929. Ligation was reported to be successful by Rundle in seven of the last ten cases in his report.

Dr. Maddox pointed out that the clinical history in the early stages of the aneurysm was usually vague, consisting of substernal pain and breathlessness, and it was not until the aneurysm presented itself at the jugular notch or until it was discovered in the course of radiography of the chest that its presence was suspected. A dense opacity due to aneurysm to the right of the superior part of the mediastinum was difficult to distinguish in plain postero-anterior X-ray pictures from that caused by substernal thyreoid gland enlargement, thymic tumour, Hodgkin's disease, and neoplastic conditions. Intrinsic pulsation was difficult to distinguish from transmitted pulsation from the aorta. The advent of angiocardiography was of considerable assistance in the differentiation. As the aneurysm enlarged, pressure effects on the right innominate vein, brachial plexus, right recurrent vagus nerve, sympathetic trunk, and even bone, had been described. Obstructed respiration or swallowing was uncommon. The sac tended to become very adherent to surrounding structures, and involvement of surrounding nerves often caused great suffering and disability. Aortic aneurysm frequently coexisted, and in such cases, when the opening into the innominate artery was wide, surgery was impossible. Sacculated aneurysms were ideally cured by triple ligation of the base of the aneurysm and of the right subclavian and right common carotid arteries. Even ligation of the right common carotid and right subclavian arteries appeared to slow the rate of swelling of the vascular tumour. Anastomosis of the right carotid artery to the internal jugular vein had been suggested, but that and attempts at coagulation of the contents of the sac were unattractive forms of therapy.

Dr. Maddox presented a patient, aged fifty-eight years, a labourer, who for nine months had complained of attacks of chest pain and dyspnœa. Those symptoms had not troubled him since he entered hospital with a diagnosis of coronary sclerosis. On examination his heart was found to be enlarged, but without evidence of valvular insufficiency and without physical evidence of disease of his great vessels apart from a distended external jugular vein on the right side of his neck and a partial loss of resonance on percussion over the inner end of the right clavicle. His pulses were synchronous and his blood pressure was normal and equal in both arms. His trachea was deviated slightly towards the left side and his fingers showed early symmetrical clubbing. Examination of his central nervous system revealed absence of deep reflexes in the legs and some loss of vibration sense. His pupils were normal in all respects. The cerebro-spinal fluid contained 75 lymphocytes per millilitre, with a very strong Wassermann reaction and a Lange curve of tabetic type. A Wassermann reaction of his blood was also present. Fluoroscopy revealed a smooth fusiform mass extending out to the right of the upper mediastinum. Feeble pulsations were visible. Fifty millilitres of 70% "Diodrast" solution were injected as a bolus into the right median cubital vein according to the technique of Robb and Steinberg, after determination of the arm-tongue circulation time. One second was deducted from that and films were obtained in the left anterior oblique position after that interval. Those films showed opacification of the left ventricle, aorta and great vessels. The dye entered the area of the presumptive innominate aneurysm and so established the diagnosis beyond question. Dr. Maddox stated that it was not proposed to ask a surgeon to ligate the aneurysm, as it was felt to be of the fusiform rather than the saccular type. Medical treatment, beginning with a course of iodide and bismuth, to be followed by the administration of arsenic and penicillin, had already begun, but in his experience medical treatment of cardio-aortic syphilis had been rather disappointing.

Medical Practice.

THE following extracts from the *Victoria Government Gazette*, Number 756, of August 4, 1948, are published at the request of the Medical Secretary of the Victorian Branch of the British Medical Association.

FACTORIES AND SHOPS ACT: DETERMINATION OF THE HOSPITAL NURSES' BOARD.

NOTE.—This Determination applies to the whole of the State of Victoria.

In accordance with the provisions of the *Factories and Shops Acts* the Wages Board appointed to determine the lowest prices or rates which may be paid to any person or person or classes of persons employed as

(*e*) certificated nurses employed in his practice by a qualified medical practitioner or dentist, or employed by any medical, dental or nursing society, association, clinic or service,

has made the following Determination, namely:

That as from the beginning of the first pay period to commence in May, 1948, the last previous Determination of this Board shall be revoked and replaced by this Determination.

PART 4.

NOTE.—Section I of this part applies to certificated nurses employed in his practice by a qualified medical practitioner or dentist or employed by any medical or dental society, clinic or service.

Section I.

Wages.

	Per Week. £ s. d.
1.	
X-ray nurse, who is a registered technician—	
During the first year's service	6 10 6
During the second year's service ..	6 15 6
Thereafter	7 0 6
Other nurse—	
During the first year's service	6 5 6
During the second year's service	6 10 6
Thereafter	6 15 6

Allowances.

2. (*a*) Any nurse, who is required to hold more than one certificate in connexion with her duties, shall receive a sum of 5s. per week for each certificate required to be used in addition to the appropriate wage rate provided in clause 1.

(*b*) Any employee at call shall receive an allowance at the rate of 5s. per week for the time at call in addition to any other rate in this Determination to which she may be entitled.

(*c*) Any employee whose duties require her to travel shall be paid first-class fares and all reasonable out-of-pocket expenses.

Hours for a Week's Work.

3. The number of hours to constitute an ordinary week's work shall be 40.

Overtime.

4. Time and a half shall be the rate payable for all work done in excess of 40 hours per week.

Meal Break.

5. A meal break of not less than 30 minutes, at a time mutually agreed upon, shall be allowed employees each day.

Annual Holidays.

6. The annual holiday shall be as prescribed by the provisions of the *Factories and Shops (Annual Holidays) Act*, 1946, No. 5111, and any amendments which may be made thereto from time to time.

Sick Leave.

7. (*a*) In the event of an employee becoming sick and certified as such by a qualified medical practitioner approved by the employer she shall be entitled to sick leave on full pay as follows:

(i) During the first year of service—one day for each month of service.

(ii) During the second, third and fourth years of service—two weeks in each year.

(iii) Thereafter—three weeks in each year.

Sick leave shall be in addition to the annual leave provided in clause 6.

Holidays.

8. All employees shall be entitled to the following holidays without deduction of pay: New Year's Day, Australia Day, Good Friday, Easter Saturday, Easter Monday, Anzac Day, King's Birthday, Christmas Day, Boxing Day, and such other day or days as from time to time may be proclaimed throughout the State as public holidays. In addition to the aforementioned holidays employees employed within the metropolitan district shall be entitled to the following additional holidays without deduction of pay: Labour Day and Melbourne Cup Day.

Special Rates for Sundays and Holidays.

9. Time and a half shall be the special rate payable for all work done on Sundays or any of the holidays prescribed in clause 8.

Minimum Payment for Work Done in any Week.

10. An employee who is willing and available for work shall if employed for less than 20 hours in any week receive a minimum of half a full week's ordinary wage for the class of work done, but if she is employed for 20 hours or over she shall receive a minimum of a full ordinary week's wage for the class of work done.

Time and Wage Records.

11. An adequate record of the hours worked by each employee and the wages paid shall be kept by each employer subject to this Determination.

Breakages.

12. Except in a case of proved carelessness an employee shall not be required to pay for any breakages occurring in the ordinary course of her specified duties.

Uniform Allowance.

13. An employee shall be entitled to a uniform allowance at the rate of 3s. 6d. per week and the uniform shall be laundered by the employer free of cost to the employee.

Termination of Employment.

14. Except where the conduct of an employee justifies instant dismissal, fourteen days' notice of termination of employment shall be given by either employer or employee, or in lieu thereof fourteen days' wages shall be paid or forfeited, as the case may be.

Correspondence.

CANCER.

SIR: We read with interest the letter of W. P. Holman in your issue of October 16. It was not in an effort to save space that we made the statement that "radiotherapy has no effect on squamous or adenocarcinomatous deposits in lymph glands", but perhaps it would have been clearer had we said "no permanent effect".

Dr. W. P. Holman admits difficulty with radiotherapy on pelvic lymph glands. We have positive operative proof that it is useless. Even outside the pelvis, that is, the superficial inguinal glands, we have removed and biopsied glands previously treated by radiotherapy and in every instance living cancer cells were found.

Most general surgeons do not trust radiotherapy for glands of the neck and axilla. We are aware of Margaret Tod's excellent work and are not unmindful of the experimental work on mammary cancer being carried out at Edinburgh, but realize that this is still in the experimental stages as Keyne's work was before it.

Experimental work should and must go on, but should not be accepted as routine treatment until proven by five and ten year results. Our work is factual and we will look forward to a similar number of gland cases treated by radiotherapy surviving five and ten years.

All our cases have been biopsied. Unfortunately such pre-treatment proof of malignancy is usually not available when radiotherapeutic treatment is prescribed for glands which may or may not contain squamous or adenocarcinomatous cancer cells.

Yours, etc.,
HERBERT H. SCHLINK.

King George V Memorial Hospital,
Royal Prince Alfred Hospital,
Sydney.
October 28, 1948.

PENICILLIN IN THE TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS.

SIR: Owing to the importance of adequate dosages in the treatment of subacute bacterial endocarditis, I think that it is desirable to redirect attention to a corrigendum which appeared on page 480 in the issue of October 16, 1948. This corrigendum adequately explains the dose which is necessary and which had been incorrectly reported in the issue of October 2, 1948, at page 389.

Although I had been materially interested in the publication of this corrigendum, because I had agreed with Dr. Thomas in the dose of penicillin recommended for the treatment of the initial and subsequent attacks of subacute bacterial endocarditis, I had, in the course of my reading, completely overlooked the corrigendum when it appeared.

I therefore feel that it is desirable through your correspondence columns to draw attention to the corrigendum, which specifies "a basic dose of one-half mega-unit of penicillin daily for four weeks" in the initial attack and states that "a dose for a second (relapse) course is two million units per day for eight weeks".

Yours, etc.,
GEOFFREY A. PENINGTON.

61, Collins Street,
Melbourne, C.1,
November 5, 1948.

PRESS STATEMENTS BY MEDICAL PRACTITIONERS.

SIR: The letter of my old friend and colleague Dr. John Catarinich calls for some comment. As my name appeared in the Press in connexion with criticism of our mental hospitals I owe it as a duty to myself, as well as to other medical men, to explain my position in regard to criticism of the mental hospital services of Victoria and of Australia generally.

Firstly, the statements that were attributed to me were never uttered by me, either to the Press or to any other person or persons. It might appear to anyone who read the article quickly that I had made a statement to the paper, but the fact was that a certain lady 'phoned to this particular paper and told the editor I had made these alleged statements, which were of a very sweeping character. As soon as I read this article I wrote to the pressman responsible for the article, pointing out that I had not made the statements attributed to me and that I was embarrassed by my name appearing in connexion with the criticism of the mental hospitals in the manner in which such criticism appeared in the Press. Further, I asked that a short paragraph be inserted in the next issue of the paper with my denial—this was not done.

I am not in any way denying that I had criticized the mental hospitals in Australia. I had done so, but my criticism was not delivered against the administration or treatment given by medical officers of the Mental Hygiene Department. Rather had I given praise to these officers, but deplored the fact that: (i) they were inadequately remunerated; (ii) there were too few in number; (iii) they were not given facilities for research and teaching such as should be granted to them; (iv) they were not encouraged to take higher degrees in medicine nor granted facilities for visits to other countries *et cetera*. I also in my criticism advocated better pay, better conditions and a higher standard of education in nursing—with increase of status of all nurses both male and female. I also stated publicly that in my opinion so-called shock treatment was not as curative as generally supposed, that in some cases it had led to permanent minor impairment of the general intellect of

sufferers and that such methods of treatment, especially insulin treatment, had been abandoned in some places that I had visited abroad and that psychological treatment had been substituted, as it was more rational and any results obtained led to an increase in the patient's social adaptation and were more likely to be permanent than result of shock treatment.

My statements are true in so far as they relate to matters of fact, but there is a wider and more important aspect of Dr. Catarinich's letter than anything that might refer to me personally. It is this. Is criticism of any public institution by a medical man to be stifled? What better method of criticism and education upon matters of public importance do we possess than by means of the Press? Has a medical man no duty to the public, or is he just a member of the British Medical Association and not a member of the great public that constitute the nation? Government servants have always resented criticism in the Press and in the same peculiar way considered themselves immune from criticism. Surely this is not a correct attitude, nor is it one conducive to reform progress. I will always consider myself a citizen of the great British Commonwealth first and a member of the medical profession second.

It has been said that articles concerned with treatment of human disorder—appearing in the Press—if critical of certain methods of treatment are very likely to disturb patients and their relatives. This may be so—and it is unfortunate if it is so—but such unquiet is a very small matter concerned with the possibilities of extensive good that may happily result if the criticism is valid and accompanied by constructive suggestion.

Finally, Dr. Catarinich complains of anonymity. This, of course, raises another very important matter of medical ethics—but as things are at present a medical man has to be anonymous to adhere to the agreed rules of his profession. Anonymity is therefore the only means he has of offering criticism—if he is not to be anonymous then he must for all practical purposes be silent. We have then at last arrived at one of the attributes of the police state.

Yours, etc.,

PAUL G. DANE.

111, Collins Street,
Melbourne, C.1,
October 29, 1948.

Obituary.

IAN THOMAS CAMERON.

WE are indebted to Dr. Keith H. Hallam for the following tribute to the late Dr. Ian Thomas Cameron.

Dr. Ian T. Cameron was born at Bairnsdale, Victoria, in 1897. He was the third and youngest son of the Reverend and Mrs. D. A. Cameron. His father later became Director of Social Services of the Presbyterian Church of Victoria, and Moderator-General in Australia. Ian Camerson attended Scotch College from 1906 to 1914, and after matriculation went into residence at Ormond College, in the University of Melbourne, to study medicine. While in college he displayed a wit, gentleness, and individuality which endeared him to his fellow students and bound him to many in close ties of friendship and affection for the remainder of his life. It was in college he early personified

> The better part of a good man's life,
> The little, unremembered acts
> Of kindliness and of love,

and thus he lived always.

At the university his interests outside his work were boxing, rowing, hockey, and amateur journalism which culminated in his being elected editor of the Medical Students' Society's journal, *The Speculum*. He gained his half-blue for hockey. After graduating M.B., B.S., he was a resident medical officer at Ballarat, Fairfield and the women's hospitals. General practice at Mornington from 1924 to 1927 was followed by a move to Croydon, Victoria, where he remained in practice till his untimely death in September, 1948.

In 1936, at the age of thirty-nine years, and while carrying on a successful and exacting general practice, he gained his Doctorate of Medicine of the University of Melbourne. This is no mean feat for a very young man devoting his whole time to study; for a man to do it in his circumstances was a colossal task accomplished with that tenacity and cool assiduity which characterized Ian Cameron. In 1938 he was admitted to membership of the Royal Australasian College of Physicians. Enlisting in 1940, he was first a captain and rapidly gained his majority. In 1942 he was taken prisoner of war in Singapore and spent the years till the liberation in Changi. Reference to his great work in that camp will be made elsewhere. In the latter part of 1945 he returned to Australia, broken in health which never mended.

During his years of practice he endeared himself to members of his community by his self-sacrifice and above all by his wonderful courtesy which did not desert him in the most trying circumstances. His urbanity and gentle tolerance were qualities to be met with to be believed. As president of the Clan Cameron he exhibited wit and charm which made him a successful leader. His interest in local affairs was genuine, and was put into practice by his willingness to give public addresses which were prepared with earnestness and care. Testimony of the profound sorrow his passing caused was shown by the overflowing congregation at the service in the Croydon Presbyterian Church, in which he had served as an elder. Ian Cameron was a quiet man, who sitting inconspicuously in a corner spared words in a full gathering, but who always claimed attention when he chose to speak. To his intimate companions he was a vivacious conversationalist with a flair for a pretty turn of wit which enlivened the display of a deep knowledge of a wide range of subjects.

Ian Cameron has passed on, but his memory will linger long, not only with those of us who knew him best, but also with all those who came under his care to experience that infinite courtesy which was the very essence of this Christian gentleman. To his wife and daughter and son our deepest sympathy is extended.

WILFRED ROBERT JOHN NICKSON.

WE are indebted to Dr. Ethel Byrne for the following appreciation of the late Dr. Wilfred Robert John Nickson.

Dr. Wilfred Robert John Nickson died at his home in Newcastle in the early hours of October 16, 1948. The medical profession in Newcastle has lost its oldest, most beloved and respected member, and many of us who have been guided by him since graduation days feel that we have lost a friend and helper who can never be replaced.

Dr. Nickson had practised his profession for sixty-three years, sixty of which had been spent in Newcastle. He represented all the highest ideals of medicine, kept abreast of the newest ideas of diagnosis and treatment, and was always willing to share his vast knowledge with people not so well informed. He was on the staff of the Newcastle Hospital for fifty-four years, the last two of which he spent as consulting obstetrician and gynæcologist. There are several names now well known in the realms of surgery and gynæcology, whose owners owe the foundation stone of their careers to Dr. Nickson. Until this year he was chairman of the medical board of the Newcastle Hospital. He attended a meeting of the drug committee two days before his death. He was unfailingly regular and punctual in his attendances at meetings and at his professional rooms, which he visited for a short time each day. He cared for a few patients in their homes up to the day before his death. At the service in the Cathedral on Sunday afternoon I heard a snowy-haired man say to his neighbour: "He has attended my household for fifty-five years. I just don't know what we'll do without him."

Dr. Nickson read widely of many subjects, other than his work; he was fond of music and could remember the words of all the Gilbert and Sullivan operas, a remarkable feat of memory. He had travelled extensively and met many famous men, among them Robert Koch, Lister and Pasteur. He was a gifted speaker and had a fund of anecdotes with which to delight his audience. The members of the medical profession in Newcastle feel that they have been privileged to profit by his experience and learning, and that the highest honour one could hope to attain would be to leave a memory as beloved and respected as that of Dr. Nickson. His son, Dr. Wilfred Nickson, junior, remains to carry on the tradition of unselfish service to the community.

ELSIE JEAN DALYELL.

WE regret to announce the death of Dr. Elsie Jean Dalyell, which occurred on November 1, 1948, at Greenwich, New South Wales.

ROBERT WELCH GIBSON.

We regret to announce the death of Dr. Robert Welch Gibson, which occurred on November 1, 1948, at Adelaide.

HAROLD ROBERT CATFORD.

We regret to announce the death of Dr. Harold Robert Catford, which occurred on November 3, 1948, at Melbourne.

ROBERT HENRY STRONG.

We regret to announce the death of Dr. Robert Henry Strong, which occurred on November 3, 1948, at Melbourne.

Naval, Military and Air Force.

APPOINTMENTS.

The undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 153 and 155, of November 4 and 11, 1948.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Volunteer Reserve.

Promotions.—Surgeon Lieutenant Edward Pruen Cordner is promoted to the rank of Surgeon Lieutenant-Commander, dated 7th September, 1948. Surgeon Lieutenant Brian Oxenham is promoted to the rank of Surgeon Lieutenant-Commander, dated 12th September, 1948.

AUSTRALIAN MILITARY FORCES.

Interim Army.

Australian Army Medical Corps.

SX34531 Captain (Temporary Major) R. Hunter relinquishes the temporary rank of Major and is transferred to the Reserve of Officers (Australian Army Medical Corps) (4th Military District), 26th August, 1948.

ROYAL AUSTRALIAN AIR FORCE.

Reserve: Medical Branch.

The following former officers are appointed to commissions with ranks as indicated: Temporary Squadron Leader John Hull Turner (261804), 8th July, 1948; Flight Lieutenants Jack Henry Palmer Abbott (267131), William Redmond Dalton (265172), 16th July, 1948.

The Royal Australasian College of Physicians.

ORDINARY MEETING, 1948.

An ordinary meeting of the Royal Australasian College of Physicians was held in Melbourne on Thursday, Friday and Saturday, October 21, 22 and 23, 1948.

At the meeting of the General Body of Fellows Dr. J. C. R. Buchanan, of Fiji, Inspector-General of the South Pacific Health Service, was elected a Fellow of the College under article 40 of the Articles of Association, which provides for the election as Fellows of such persons as have in the opinion of the Council sufficiently distinguished themselves in any branch of medical science or internal medicine.

At this meeting also the following members were elected under article 38 of the Articles of Association to Fellowship of the College: Dr. J. E. Sewell, of Victoria; Dr. Terence C. Butler, of Tasmania; and Dr. Murray McGeorge and Dr. R. F. Wilson, of New Zealand.

The following candidates, who were successful at the examination for membership held in Australia in September-October, 1948, were admitted to membership of the College: Dr. E. J. Halliday, Dr. H. D. M. Hercus and Dr. A. B. Hogan, of New South Wales; Dr. Sheila Clifton, Dr. H. W. Garlick, Dr. H. I. Jones, Dr. Joan Marsden, Dr. A. C. Newell, Dr. P. N. O'Donnell, Dr. W. R. Pitney and Dr. P. S. Woodruff, of Victoria; Dr. R. A. Burston and Dr. H. R. Gilmore, of South Australia; and Dr. R. L. Leedman, of Western Australia.

The Royal Australasian College of Surgeons.

RECIPROCITY OF PRIMARY FELLOWSHIP EXAMINATIONS.

Advice has been received by the Council of the Royal Australasian College of Surgeons that, in future, the primary examination for the Fellowship of the Royal Australasian College of Surgeons shall be reciprocal with the primary examination of the Royal College of Surgeons of England. In other words, graduates successful in the primary examination of either College will be deemed to have obtained the primary examination of both Colleges.

As has already been announced a primary examination for Fellowship of the Royal College of Surgeons of England will be held in Australia in February, 1949. Thereafter the Royal Australasian College of Surgeons will conduct its own primary examination, and graduates successful in this will, *ipso facto*, possess the primary examination of the Royal College of Surgeons of England.

The Royal Australasian College of Surgeons will conduct courses of instruction for its primary examination and dates of these will be announced in due course.

The Council of the Royal Australasian College of Surgeons is very gratified that in this way the examination burden will be lessened and time and expense saved for young graduates desiring to qualify for a surgical career. The Council believes that this development is not only an expression of confidence in the standards required by the Royal Australasian College of Surgeons, but also a gesture of deep significance which will strengthen further the bonds of Empire.

Nominations and Elections.

The undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Hilliard, Eric Raymond, M.B., B.S., 1948 (Univ. Sydney), The Hospital, Parramatta North.

Martin, James Mathew, M.B., B.S., 1945 (Univ. Sydney), corner of Robert Street and Eastern Valley Way, Willoughby.

Stevenson, Malcolm Keith, M.B., 1947 (Univ. Sydney), 39, Russell Street, Watson's Bay.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association:

Nordstrom, Leslie Leonard, M.B., B.S., 1947 (Univ. Sydney), 26, Burnell Street, Five Dock.

O'Loan, John, M.B., B.S., 1947 (Univ. Sydney), Mater Misericordiæ Hospital, Waratah.

O'Shea, Desmond Patrick Joseph, M.B., 1945 (Univ. Sydney), 5, "Athens", 4, Penkivil Street, Bondi.

Pantle, George Constantine, M.B., B.S., 1947 (Univ. Sydney), Royal South Sydney Hospital, South Sydney.

Raftos, John, M.B., B.S., 1945 (Univ. Sydney), Flat 7, 602, Railway Parade, Hurstville.

Reid, Alison Eva, M.B., B.S., 1945 (Univ. Sydney), 19, Newton Road, Strathfield.

Reynolds, Farrell John, M.B., B.S., 1948 (Univ. Sydney), Royal North Shore Hospital, Saint Leonards.

Richardson, Eleanor Mary, M.B., B.S., 1947 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Rofe, Rosanne Lyle Fulton, M.B., B.S., 1947 (Univ. Sydney), Bathurst District Hospital, Bathurst.

Rofe, Owen Fulton, M.B., B.S., 1947 (Univ. Sydney), 853, New South Head Road, Rose Bay.

Rothfield, Neville Jacob Harris, M.B., B.S., 1946 (Univ. Melbourne), Base Hospital, Wagga Wagga.

Rugless, Margaret, M.B., B.S., 1947 (Univ. Sydney), 8, Seaview Street, Randwick.

Sabiel, Kevin Norman, M.B., B.S., 1947 (Univ. Sydney), Base Hospital, Grafton.

Schofield, James Alexander Vindin, M.B., B.S., 1947 (Univ. Sydney), Royal North Shore Hospital, Saint Leonards.

Scott, Godfrey Chesworth, M.B., B.S., 1944 (Univ. Sydney), c.o. Dr. L. Bamber, Lithgow.

Scott, Hilary James, M.B., B.S., 1947 (Univ. Sydney), 204, Main Road, Thirroul.

Sheehy, John Edward, M.B., B.S., 1944 (Univ. Sydney), 34, Harris Street, Granville.

Sheils, John David, M.B., B.S., 1947 (Univ. Sydney), Base Hospital, Grafton.

Small, Jean Maude, M.B., B.S., 1943 (Univ. Sydney), 41, Pennant Hills Road, Normanhurst.

Spence, Robert Kinross, M.B., B.S., 1947 (Univ. Sydney), 16, O'Donnell Street, Bondi Beach.

Spooner, Robert Dubois, M.B., B.S., 1947 (Univ. Sydney), 134, West Street, Balgowlah.

Swan, Charles Russell, M.B., B.S., 1947 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Tink, Arnold Richard, M.B., 1947 (Univ. Sydney), 39, Clifford Avenue, Manly.

Treloar, Douglas Tremayne, M.B., B.S., 1948 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

Russell, Joyce Ingram (formerly Turner), M.B., B.S., 1944 (Univ. Sydney), 45, Boundary Street, Roseville.

Tillett, John Varnell, M.B., B.S., 1947 (Univ. Sydney), Landsdown House, Villawood.

Valese, Peter, M.B., B.S., 1942 (Univ. Sydney), 4, Brown's Avenue, Marrickville.

Van Leent, Johan Philip, registered in accordance with the provisions of Section 17B of the *Medical Practitioners Act*, 1938-1945, Flat 44, Birtley Towers, Elizabeth Bay.

Vanstone, Stephen Normal, M.B., B.S., 1939 (Univ. Sydney), Prince Henry Hospital, Little Bay.

Walters, David John, M.B., B.S., 1947 (Univ. Sydney), 3, Village Lower Road, Vaucluse.

Willcocks, Ann Hilda, M.B., B.S., 1946 (Univ. Sydney), 37, Wallaroy Road, Double Bay.

Wilson, Eunice Maisie, M.B., B.S., 1944 (Univ. Sydney), Brighton Hotel, Brighton-le-Sands.

Jagers, Leslie James, M.B., 1944 (Univ. Sydney), Oaks Avenue, Dee Why.

Rosenthal, Eugene John, registered in accordance with the provisions of Section 17B of the *Medical Practitioners Act*, 1938-1945, 201, Macquarie Street, Sydney.

Whealy, Nicholas George, M.B., B.S., 1947 (Univ. Sydney), 164, New South Head Road, Edgecliff.

Australian Medical Board Proceedings.

TASMANIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners:

Sagar, Martin Raymond, M.B., Ch.B., 1925 (Manchester), Hobart.

Greenberg, Audrey, M.B., B.S., 1947 (Sydney), Launceston General Hospital, Launceston.

Medical Appointments.

Dr. Marie E. Hill and Dr. C. A. Sara have been appointed honorary assistant anæsthetists to the honorary medical staff of the Royal Alexandra Hospital for Children, Camperdown.

Dr. A. P. Balthasar has been appointed honorary relieving assistant anæsthetist to the honorary medical staff of the Royal Alexandra Hospital for Children, Camperdown.

Dr. D. W. Johnson has been appointed Deputy Director-General of Health and Medical Services, Department of Health and Home Affairs, in pursuance of provisions of *The Public Service Acts*, 1922 *to* 1945, and *The Health Acts*, 1937 *to* 1946, of Queensland.

Diary for the Month.

Nov. 23.—New South Wales Branch, B.M.A.: Ethics Committee.
Nov. 24.—Victorian Branch, B.M.A.: Council Meeting.
Nov. 25.—New South Wales Branch, B.M.A.: Branch Meeting.
Nov. 26.—Queensland Branch, B.M.A.: Council Meeting.
Nov. 29.—Victorian Branch, B.M.A.: Executive Meeting.
Dec. 1.—Victorian Branch, B.M.A.: Annual Meeting.
Dec. 1.—Victorian Branch, B.M.A.: Council Meeting.
Dec. 1.—Western Australian Branch, B.M.A.: Council Meeting.
Dec. 2.—New South Wales Branch, B.M.A.: Special Groups Committee, Clinical Meeting.
Dec. 2.—South Australian Branch, B.M.A.: Council Meeting.
Dec. 7.—New South Wales Branch, B.M.A.: Executive and Finance Committee, Organization and Science Committee.
Dec. 8.—Victorian Branch, B.M.A.: Council Meeting.
Dec. 9.—New South Wales Branch, B.M.A.: Branch Meeting.
Dec. 10.—Queensland Branch, B.M.A.: Annual Meeting.
Dec. 14.—New South Wales Branch, B.M.A.: Ethics Committee, Medical Politics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or *Medical Dispensaries*; *Australian Prudential* Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; *National Provident Association*; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

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